SAFETY AND QUALITY

THE LINK BETWEEN WORKER SAFETY AND A JOB WELL DONE

Employee safety and the overall quality of a finished job are intricately linked. Many of the factors that lead to quality-related issues on a painting project can be addressed by better protecting workers from the hazards of their work. This makes sense for owners to do, because small or large, these issues can be detrimental to the contractor, the structure or the coating system. Luckily, many of these problems can be addressed right from the beginning of the project.

Here we'll talk about some of the ways safety and quality are linked on a job site. Some of them are obvious, some of them less so.

The hidden cost of a low bid

The benefits of performing work safely are obvious. No one needs to explain why returning home free from sickness and injury at the end of each workday is better than the alternative. Less often discussed is the impact the safety of workers can have on the quality of the job being performed.

Contractors cutting corners to offer rock-bottom bids may not realize or care that worker safety is directly related to the quality of work performed. In fact, safety and quality are intricately connected. Skimping on the equipment, technologies and best practices that keep workers safe will almost undoubtedly be reflected in the finished product.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

THOMAS INDUSTRIAL COATINGS

The illusion of savings

Imagine a scenario. You're a facility manager in charge of contracting out the painting portion of a massive job your company is in the middle of. You come across a bid that's 25 percent lower than the original estimate of the job's cost. Without investigating further, you award the contract.

It turns out the industrial painting contractor you've hired is used to working on private sector buildings and yours is a large infrastructure project involving a significant need for fall protection. This is causing unexpected delays. Additionally, the contractor is filing change order after change order, and the project's costs continue to rise.

Lost-time accidents, injuries to a firm's reputation from missed deadlines, potential lawsuits from unscrupulous contractors– these are all hidden dangers when bidding on price alone. The costs associated with a cheap, inexperienced painter can add up quickly, far outstripping the original savings of the contract.

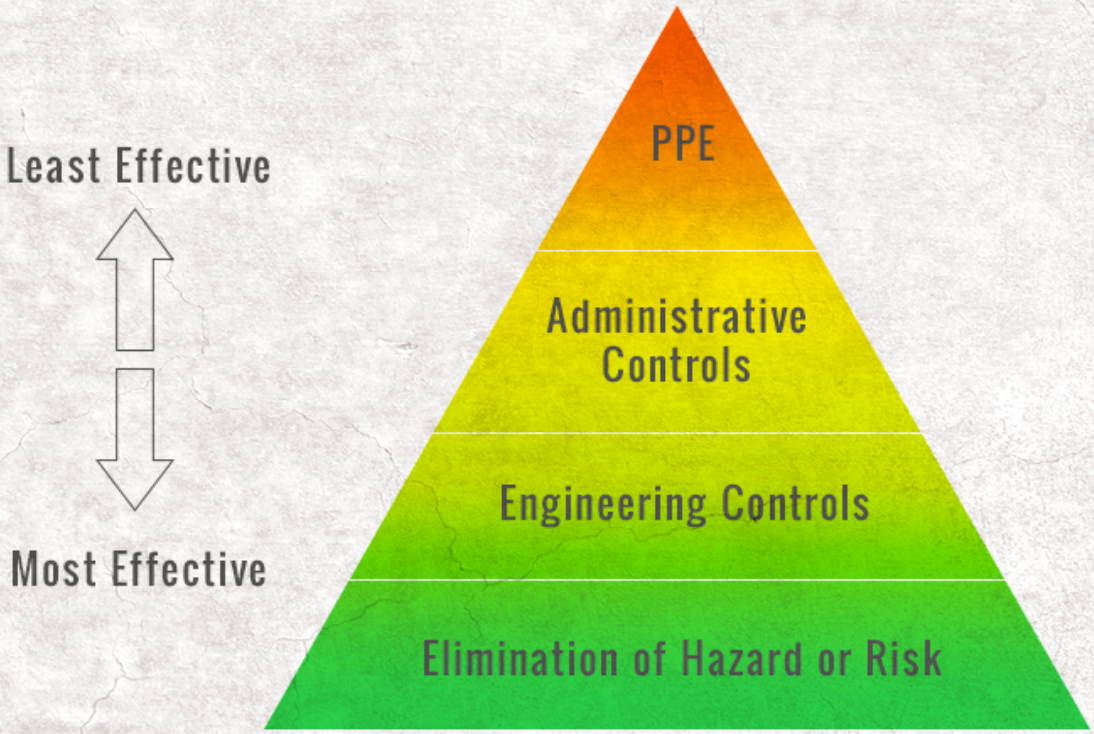
Looking beyond the low bid

Fortunately, there are some surefire ways, beyond simple intuition, to determine whether a contractor or subcontractor's bid is too good to be true. We've written before on the importance of asking the right questions concerning an industrial painter's safety program before making a hire. Checking up on numbers like experience modifier and incident rates will give an owner an idea of how well a safety program performs. Looking at the amount of certifications a contractor has accrued will also give one an idea of how focused they are on improvement.

Low-bid contractors aren't the only threat to both safety and quality. Other factors include the effectiveness (and costs) of different strategies of minimizing risks, how limited access to areas on the job-site can compromise worker safety and the thoroughness of the work, equipment selection and inaccurate initial assessments.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

THOMAS INDUSTRIAL COATINGS



Examining on-site safety in terms of layers of protection

In the real world, every single element of risk cannot be eliminated from a job. But decreasing levels of risk wherever possible is necessary to both ensure worker safety and to enhance the quality of job being performed. No employee can be expected, nor should they be, to perform a job without the knowledge that every possible measure is being taken to guarantee their safety.

In this graphic we look at various methods for managing on-site safety and their varying degrees of effectiveness. Like all models, this one represents a hypothetical where the opposing extremes would be impossible to replicate in a real-world situation. In reality, a combination of these approaches would be used to ensure that maximum worker safety is achieved, wherever possible, at each level.

At each level, we'll take the example of a bridge painting job and examine what factors that can be controlled for at every layer of protection.

THOMASINDCOATINGS.COM

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

Elimination of the hazard or risk

In the case of a bridge painting job, fully eliminating the hazard or risk might entail bringing the bridge to ground level. A bridge over a river would require the bridge be brought to ground level and the river completely covered over. This would be an expensive proposal for a contractor to make, not to mention a feat of engineering, and likely wouldn't fit into the scope of work.

As you may have guessed, the total elimination of many on-site hazards simply isn't feasible. While some hazards, such as slippery surfaces, could in practice be completely eliminated, others must be addressed further up our pyramid.

Engineering controls

These measures are modifications of on-site conditions for the purpose of achieving a safer workspace. On our hypothetical bridge job, examples of engineering controls could include the installation of safe and effective temporary safety platforms beneath the bridge, like the ones manufactured by our friends at Safespan. Creating a large, stable platform reduces the risk of a fall.

Since our bridge is over water, another engineered control would be the presence of a safety boat whenever crews are at work on the bridge. Both of these are examples of safety measures we can "install" in an environment to control for inherent risks.

Administrative controls

Here's where it helps to have comprehensive safety documentation in place. Documented safety procedures should go beyond the minimum required by regulatory agencies. Since it is impossible to eliminate all the hazards that may exist on a work site, it's imperative that employees are made aware of potential risks and have standards in place for dealing with them.

The procedures contained within should be designed by experienced safety professionals and taught, circulated and enforced throughout the workforce.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

Personal Protective Equipment

Personal protective equipment (PPE) is the worker's last line of defense against injury. Multiple, more proactive steps should be taken before relying on PPE to protect crews. By no means does this mean that PPE is unimportant.

Fall protection is the most obvious requirement on our hypothetical bridge project. But, depending on the work being done, certain respiration, material handling, dust collection or decontamination equipment may be necessary.

PPE is an investment in the workforce and by extension the quality of the work being performed. As such, all-possible measures should be taken to ensure that the equipment is up-to-date and in good working order.

Once safety concerns are addressed at every level of the pyramid, we can begin to expect quality work. As discussed in the bridge example, roadways are one area where implicit dangers make extensive safety considerations essential.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

Work zone safety: Staying safe on roadways

The nation's transportation infrastructure wouldn't be there without the hardworking men and women who braved the dangers involved in building it. And sadly, there are plenty of them. Falls from elevation, access issues, exposure to lead-based paint, and of course vehicle traffic, can all threaten safety on transportation infrastructure jobs. But if citizens expect quality work to be done on the bridges and roads that connect them, real attention must be paid to alleviating these dangers.

The sad truth is that there were 609 work zone fatalities in 2012, according to the National Highway Traffic Safety Administration. Of those that died, 133 were workers at these sites. That number was up from the previous year. If we except quality work from those who call the road their office, it's time to start thinking about how we can make it a safer place to be. For comprehensive traffic control standards, managers of roadwork jobs should always consult the Manual on Uniform Traffic Control Devices. Here are some main points to consider in the meantime.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

THOMAS INDUSTRIAL COATINGS

1. Close the road and detour when possible

Closing roads and establishing detours during construction is the safest option for workers. Where it is feasible it should always be the go-to strategy. There may be concerns of unreasonably inconveniencing commuters, even to the point of fearing public backlash, but there are ways to go about mitigating these concerns.

A good public relations strategy can go a long way. And thanks to the Internet, this doesn't have to be a huge investment in time or money. If your organization has a website or Facebook page, consider keeping the public informed on the reason for the closure, its expected duration and viable detours. A little information goes a long way toward building empathy for those working hard on improving roadways.

2. Barriers

Barriers are engineered controls to protect workers from traffic. You'll remember that engineered controls are slightly less effective than a complete elimination of the hazard or risk, which, in the case of traffic, would be the step mentioned above.

Since traffic cannot be completely rerouted in all situations, barriers are essential to protecting workers. Rigid barriers, such as concrete barricades, should provide separation between opposing lanes of traffic or between traffic lanes and work areas. Flexible barriers should only be used as channelizing devices for traffic.

3. Work hours

Roadwork managers often make the decision to perform work at night in order to avoid peak traffic. In addition to reduced visibility on roadways, decision-makers often underestimate the limitations this puts on the time workers have to spend on their projects. By the time traffic control and containment measures are in place, crews may only have four to five hours left in a given shift to accomplish their portion of the job. It is crucial that this time reduction is accounted for when working towards a completion deadline.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

THOMAS INDUSTRIAL COATINGS

Natural cycles of sleep and wakefulness are also disrupted when working overnight, which can increase the risk of worker fatigue over time. A person suffering from fatigue is more likely to experience poor judgment, a lack of concentration and an increase in risk taking behavior. There is also the concern that motorists that happen to be on the roadway at these times are experiencing similar symptoms. These are factors that must be taken into consideration before deciding to schedule work at night.

4. Worker visibility

The Federal Highway Administration mandates that all personnel at work on a federal-aid highway wear high-visibility clothing. In practice, such clothing should be worn wherever work brings crews into contact with roadways. Think of this clothing as personal protective equipment (PPE). This may be a less effective layer of protection, according to our pyramid, but an important one nonetheless. ANSI Class 3 materials for low light levels and ANSI Class 2 for daytime, consisting of fluorescent background material and reflective trimming, are always recommended.

5. Safe positioning

Construction vehicles or other equipment operating inside a work zone can be as dangerous as traffic moving along outside. It is essential that there be an internal traffic control plan (ITCP) that governs movement within the work site. This plan should minimize the amount trucks are able to back up within the site. Areas should be designated for foot traffic and workers should be advised not to travel outside them while on foot. Special care should also be taken around moving and rotating equipment such as cranes. The swing radius of such machinery should be clearly marked.

6. Access and egress

Work zone entrances and exits present some unique challenges to roadside safety. These points must be wide enough to accommodate large construction vehicles. They also must be clearly marked so that motorists do not enter them on their own or follow construction vehicles inside. When designing the work site, it's also important to consider how closely workers on foot will come to points of access and egress.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

THOMAS INDUSTRIAL COATINGS

Proper planning is essential for situating the work zone safely. Once it's been laid out, it should be continuously reevaluated in changing conditions. Workzonesafety.org has a number or great resources for planning a safe worksite. Their Guidelines on Work Zone Access and Egress offer an in-depth look at this aspect of the work zone.

Two additional organizations, the Federal Highway Administration, and the National Highway Traffic Safety Administration, offer helpful resources for planning work involving roadways.

Lead paint is another danger workers are likely to encounter while repairing infrastructure. Like the factors above, it's another aspect of a project that needs to be accounted for.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

THOMAS INDUSTRIAL COATINGS

Protecting workers from lead paint exposure

Owners of industrial painting companies know the importance of taking care of their crews. They're the guys out there battling the elements to make sure the job gets done. They have the skills and know-how to complete a project that community members or facility owners can take pride in.

Having an experienced workforce leads to the quality craftsmanship that reminds your customers why they do business with you. That's why protecting your crews from the hazardous materials they handle is not just good safety sense, it's good business sense too. Here we discuss some ways to protect workers from lead paint exposure, ensuring they deliver quality work far into the future.

Monitoring exposure

OSHA standards limit the acceptable amount of lead paint exposure in order to protect workers from the harmful effects of over-exposure. Monitoring should begin when work is done on a job that is thought to contain lead-based paint.

When initial exposures are over the "action level," employers should continue monitoring lead paint exposure to ensure it remains within an acceptable range. Workers should be consistently

THOMASINDCOATINGS.COM

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

monitored to ensure that they do not exceed this permissible exposure limit (PEL).

Employers are responsible for maintaining records of all monitoring and data used to determine employee exposure levels. The employer must also inform the employees of the results. These records should include dates, duration of exposure, results and a description of the measurement procedure.

Engineering controls

According to OSHA, engineered controls, such as isolation and ventilation systems are the preferred method of reducing exposure to airborne lead on a job-site. Engineering controls fall into three main categories: substitution, isolation and ventilation.

Three-coat systems consisting of zinc-based primer, epoxy intermediate coat and urethane finishing coat are effective substitutes for paints containing lead. They are also among the most commonly used. Substitution can also refer to a change in the process equipment used for lead paint removal. This could mean opting for a blasting technique that reduces the amount of airborne dust, such as wet abrasive blasting for example.

Complete containment of a project is an effective strategy for limiting the overall potential for exposure to lead. This has the added benefit of limiting the exposure of employees not directly involved in the lead abatement portion of the project. Containment does have the potential to raise the concentration of lead present inside, so this method must go hand-in-hand with ventilation engineering controls.

Ventilation is the most important control for limiting employee exposure and maintaining acceptable airborne concentrations of lead. Properly designed exhaust systems should capture lead particles near where they are generated and transport them to a particle collection device before they are able to circulate throughout the environment.

Equipment

Although engineering controls are more effective, and should be the primary efforts to reduce lead paint exposure, personal protective equipment (PPE) should be used to further limit exposure. Respirators and protective clothing should be used as additional protective barriers. PPE is always the last line of defense.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

Respirators and protective clothing should be put on before entering the workspace and not removed until the area is exited. It is the responsibility of employers to make sure employees are properly trained in the use of the respirators, written instructions for their selection and use are in place, and that they are properly cleaned and maintained.

Protective clothing for work with lead-based paint should include coveralls, gloves goggles or face shields, and welding or blasting helmets when necessary. Contaminated protective clothing should never be worn off-site. Employers should provide changing facilities where clothing possibly containing lead can be removed and workers can shower before changing into clean clothing.

Keys to quality: Coating specification and inspection

Inaccurate assessments of an existing structure and inconsistent quality control are two more factors that have a bearing on quality. Differing opinions, either on the job that's to be performed or the quality of the work that's been done, can affect the overall outcome of the project. As in the past, we'll see that these two issues also have an effect on safety.

Initial Assessment

A good initial assessment of a structure's coatings is crucial for directing the next steps of the project. This process should answer questions concerning the current state of the system, as well as address other factors such as containment, safety and environmental considerations. When these issues are inadequately or improperly considered, the length, quality and integrity of the job are likely to be affected. Not to mention the safety of those performing it.

The project specifications that follow from the initial assessment should account for staging, containment, surface preparation, application, cleanup and quality control documentation. Inaccurate initial assessments can lead to unforeseen variables in the scope of work. Reducing the unknowns going into the project will increase the chances of finishing on time and on budget. It will also help to ensure that the quality of the project is up to the owner's expectations and the safety of those performing the job is considered.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

THOMAS INDUSTRIAL COATINGS

Inconsistent Inspection

Specifications that follow from accurate initial assessments aren't enough if inspectors don't ensure they're followed. Once again, irregularities in the inspection process will have an effect on the job's outcome.

It's up to the inspector to ensure that the work is being done in accordance with the project's specifications and that the work activities are documented. Differences in opinion have the potential to arise between inspector and applicator in regards to whether specifications are being met. It is essential that those involved in resolving these differences are qualified to do so. Inspectors are directed to contact contractor supervisors if they feel that applicators are not living up to the standards laid out in the project's specifications.

Applicators also must take care to focus on performing their work to comply with specifications, not simply to satisfy the inspector. Objective documentation tools are making progress in removing subjective aspects of the inspection process. Transcription errors and miscopied readings from electronic gauges are increasingly being eliminated by these digital tools, leading to a more objective inspection process.

With accurate initial assessments and consistent, objective inspection, coatings projects have a higher likelihood of adhering to project specifications. This in turn leads to a high quality project that's completed by the deadline, with no surprises.

Safety that makes sense

As we hope to have shown, there is a strong link between the safety of crews at work and the quality of the job they perform. Contractors can help to ensure that they're delivering a solid finished product every time, simply by ensuring their employees' safety is a top consideration. It just goes to show that valuing safety makes more than just moral sense. It makes good business sense, too.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512

THOMAS INDUSTRIAL COATINGS

About Thomas Industrial Coatings

Incorporated in 1991, Thomas Industrial Coatings has since grown to become one of the most trusted names in industrial painting and coatings. Our philosophy is based on achieving one feeling: Pride. We believe that if we take pride in all that we do, quality workmanship will naturally follow. One way we achieve Thomas Pride is by keeping safety at the heart of all we do.

Questions about the safety program at Thomas Industrial Coatings

Contact:

Todd Cook, Safety Director
tcook@thomasindcoatings.com
636-475-3500 ext. 129

Keep in touch with Thomas Industrial Coatings

We're constantly updating our website with original content, company news and the latest from around the industrial coatings industry. Keep up to date by subscribing to our newsletter, connecting with us on LinkedIn or "Liking" Thomas Industrial Coatings on Facebook.

Thomas Industrial Coatings, Inc.
2070 Highway Z // Pevely, MO 63070
Phone: 636-475-3500 // Fax: 636-475-3512