



# NEWS RELEASE

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## **Keep safety in mind when planning lean, green, and sustainable projects**

*by Charles Colbert*

Leaders everywhere are focusing on creating a lean and green organizational culture that strives for continuous improvement resulting in better projects that are built faster and cost less. As the cultural shift is made, it is important to remember that lean and green does not automatically correlate to acceptable risk, especially from a maintenance worker and system safety perspective.

All Defense Department installations are under programs that emphasize Leadership in Energy and Environmental Design Silver, Gold or Platinum certification. In addition, as resources become precious, installations are becoming more lean and sustainable. Organizations and programs can improve cost savings and efficiency while being good community citizens, however these concepts must be applied with system safety reviews.

As management leads an organization or program to become lean and green, it must constantly be thinking about assessing risk and determining what is acceptable risk. Safety is the first step in a cultural journey to continuous improvement — plan, do, check, act. Management should want to attain acceptable risk, lean and green, which will allow an organization or program to employ best practices and best engineering judgment leading to state-of-the-art facilities.

Systems safety review needs to happen as early as possible in the design process and at intervals contributing to the final design. Army Regulation 385-10, *the Army Safety Program*, directs that facility designs will have a systems safety review; Department of the Army Pamphlet 385-16 details the process; and U.S. Army Corps of Engineers', Engineer Manual 385-1-1, requires all construction projects to have a Safety and Occupational Health Plan (SOHP) as part of the pProject Management Plan (PMP). This includes a preliminary hazard analysis, or risk assessment, according to Field Manual 5-19, *Mishap Risk Management*, DA Pam 385-30, and USACE Program Management Best Practices 8016G.

Some designers think that adequate safety is incorporated by life cycle codes such as National Fire Protection Association 101, but these do not protect maintenance workers from falls, noise, heat stress and any latent or unrecognized hazards that may be within to the design.

For example, the gorgeous atrium at Bassett Army Hospital, Fort Wainwright, Alaska, reaches 90 feet in height. To change lights at that height required a mechanical lift, but the atrium doorways were not large enough for a mechanical lift to pass through. The design created a safety problem that had to be corrected.

Retrofits are expensive and can be avoided. The best thing designers can do is consider the tasks operations and maintenance staff will have to perform to keep the facility up and running as they work. Providing engineered fall protection anchors, power outlets for confined space ventilation, and sustainable egress and ingress are examples of adding safety to the design.

Cultural change is not easy, and safety integration is even harder. If leaders dictate lean and green without respect for employees' safety, they will find that it does not produce the results they had expected. Leaders who want to do the right thing for the right reasons will dictate "safe, lean and green," which will improve readiness and mission integrity.

The private sector and the government tend to rely on standards, codes, regulations and other requirements, such as those published by the American National Standards Institute, National Fire Protection Agency, Occupational Health and Safety Administration and American Society of Mechanical Engineers, but such reliance may not protect from liability. The Federal Tort Claims Act waives sovereign immunity and constitutes the consent of the U.S. government to be sued for the negligent acts of its employees who were acting within the scope of their employment.

According to one personal injury attorney, standards compliance is not a complete defense. Designs are required to be reasonably safe, and the definition of "reasonably safe" varies among jurisdictions. For example, some use a consumer expectation test, while others rely on risk and utility analysis.

Similarly, management that is not heeding its engineers needs to reconnect with its staff. Companies and the government can fall out of step with what their peers are doing. It is now standard practice to perform "facility systems safety reviews" and "prevention through design, as it is known in the private sector, and if regulations and standard practice state that these design reviews are required, then they must be done in practice.

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#### Acronyms and Abbreviations

DA Pam – Department of the Army Pamphlet  
LEED – Leadership in Energy and Environmental Design  
USACE – U.S. Army Corps of Engineers

Photo info:

Atrium with inaccessible ceiling lights caption:

Changing lights at 90 feet in the air presents a safety challenge that the designers of the atrium at Fort Wainwright's Bassett Army Hospital did not take into account. Courtesy photo