



Human Factors Applications

Our Services: Human Factors in Construction & Build

Summary

Human Factors Applications can **systematically** identify the human-related risks and hazards associated with construction (*and plant turnaround*) activities. This service is aimed at finding the root causes of human errors, applying lessons-learned & implementing effective solutions to **improve project performance**.

Why Apply Human Factors in Construction & Build?

Construction workers account for an outsize proportion of workplace fatalities (**5.5% of the workforce, but 21.5% of fatalities**). Human behaviors have been shown to contribute to this increased accident rate, and were identified as the **most prominent risk factors** by construction project managers.

Among other factors, risks may be caused by:

- **Concurrent Activities** – which can lead to congested work areas, loss of situational awareness and reduced control of construction activities;
- **Communication Deficits** such as poor shift handovers (*this is a well-recognized problem during the operations phase*);
- **Construction Organization, Planning and Execution;**
- **Construction systems turnover to Operations** – a critical project phase during which many problems typically arise;
- **Fatigue Management, Human Performance & the Working Environment** –identifying the effects of temperature, lighting and physical factors on work activities.

Applying lessons-learned from past projects and incorporating understanding of the potential for human error can reduce project risks and ensure safe and efficient delivery. Our consultants have gained this knowledge on past projects, and can apply this practically during **Constructability Reviews**. We can also apply a **Construction ALARP review** of identified safety-critical tasks.

What are the benefits?

Systematically identifying, analyzing and assessing the effects of human factors can significantly reduce risks to safe & efficient construction. Improvement areas include:

- **Access to equipment** –planning access can eliminate the need for unnecessary scaffolding, significantly reducing costs;
- **Installing field-run items** – ensuring these items do not obstruct planned access routes; this also reduces field-changes;
- **Material handling** – reducing double-handling, overhead work, unplanned lifts and dropped-object risks; evaluating workspace provision and routing;
- **Working-at-height** – planning effective management for the work performed above grade.

Application of Human Factors Applications' knowledge and tools can lead to improved construction quality, safety, reduced construction costs & schedule, and the predictability of project outcome.