



Hazards

The highest priority for the proper management of structures systems and components (SSCs) is safety. Not only does this provide ideal and efficient conditions for operation, but it affirms staff health and prevents potential high repair costs. Part of ensuring this safety at the design, operation or decommissioning phase, is assessing and evaluating all potential hazards associated with a particular plant.

With a comprehensive understanding of and experience in assessing any hazard associated with structural integrity, EASL are experts at providing clear and authoritative assessment. Whether it's civil nuclear, power generation, defence, oil or gas, our highly specialised team of staff can provide a cost-effective approach sympathetic to our clients' needs.

What is Hazard Assessment?

In every walk of life there are potential risks and threats depending on the conditions or the environment in which an event takes place. These hazards can pose varying degrees of threat, and often with a variety of consequences. Within the field of structural integrity, these potential hazards are required to be assessed and considered through a wide range of different industrial regulations.

Modern safety cases require systematic assessment of external and internal hazards and EASL help to provide solutions to hazards that can be mitigated by enhanced structural integrity. We provide solutions to the following external and internal hazards:

- **Earthquakes**
For earthquakes, we provide seismic structural integrity services and seismic design to demonstrate the integrity, operability and stability to withstand the design basis earthquakes and the lack of cliff edge effects under beyond design basis earthquakes. Traditionally, deterministic assessment has been generally used to achieve the goal. However, with the advances in modern safety cases expect that the seismic risk be evaluated as part of the overall plant probabilistic safety assessment. To this end, EASL provides probabilistic seismic fragility study which will provide HCLPF capacity for structures, systems and components.
- **accidental aircraft crash**
Accidental aircraft crash normally causes localised damage. The protection against this risk may be achieved by geographical separation of the required systems or components, by addition of protective structures or by providing consequence analysis to demonstrate that the consequential local damage will be acceptable to safety. With our extensive expertise and experience in structural integrity, we provide failure analysis and assessment to qualify the consequential local damage.
- **extreme snow and wind**
Extreme snow and/or wind will apply extreme loadings on to structures and also on the systems and components that are not protected by structures. For protection, the plant is normally designed to ensure that satisfactory operational conditions are maintained for those systems where failure is likely to adversely affect the safety functions. To support this safety principle, we provide structural integrity assessment services to demonstrate the integrity and capability of system to achieve safe shutdown.



- **dropped load or impact**
The protection against dropped load or impact can be mitigated through design layout to minimise the direct effects on structures, systems or components. However, the effects of a dropped load or impact on surrounding structures, systems and/or components must be assessed to demonstrate that their safety functions are not compromised. We provide structural integrity assessment services to demonstrate the integrity, operability and stability to satisfy the intended safety functions.

These specific hazards can pose a threat to the operation and safety of a structure, system or component. Managing these risks, and developing strategies and procedures is crucial to a successful and long expected lifetime.

Whatever hazard you require assessing, EASL has a team of highly experienced engineers available to deliver clear and reliable results for the clients' needs. With our solution-focussed approach, we go the extra mile to ensure satisfaction by identifying the context and purpose for assessment. This allows us to produce a specific and bespoke assessment for each client.

Related Services

- **Radiation**
- **Seismic Analysis**
- **Safety Case Production**