Structural Analysis

EASL are experts in engineering analysis, so much so, it's part of our name. With our highly trained, specialised team of engineers and scientists comprising graduates through to PhDs, we can deliver a whole range of structural analysis, offering bespoke and specific services to our clients.

With over 250 man years' experience assessing and analysing the mechanical integrity of structures, systems and components, EASL are proud to offer our services to a wide range of industries. With experience in civil nuclear, power generation, defence, oil and gas, our niche expertise can be applied to provide in-depth structural analysis for whatever project our client has in mind.

What is structural analysis?

Structural analysis is generally performed as part of an overall structural assessment to demonstrate the integrity of a component or structure against acceptance criteria, the results of which may form part of the overall structural integrity arguments.

It is often a requirement to ensure that structural analysis has been carried out, becoming part of a design code justification or safety case for continued operation, however, the results provided to the client can provide an insight into current and potential future issues. Such knowledge can help to prevent unplanned outages or closure, and ensure that necessary repair or maintenance work can be carried out in a timely and cost-effective manner.

Structural analysis results the application of theories relating to structural mechanics. This is the study of the behaviour of solid bodies under load and understanding how they react to the applied loadings and forces, whether they are static, dynamic, thermal or a combination of these.

The application of forces results in deflections in the body which generate stresses and strains. In some cases it is possible to idealise components in order to simplify problems and apply analytical methods to determine the resulting deflections.

However, for more complex problems the only practical solution is to employ numerical methods, such as the finite element method. In all cases, the stresses and strains arising from the analytical solutions or calculated deflections are compared to failure criteria to ensure that the component will not fail within its service life.

EASL work with a relationship-driven ethos, meaning that we want to provide our client with the best response to their needs. Taking on board the context and purpose or the structural analysis, we can choose the most appropriate engineers and skills for the job to provide cost-effective and efficient results.

EASL's Structural Analysis services

The engineering know-how applied in EASL's solutions ensure that the correct analysis is carried out at all stages, from the determination of appropriate inputs all the way through analysis to the assessment phase. We take ownership of our client's problem, by taking every step necessary to ensure that the best analysis for the job is carried out.

Structural analysis of complex engineering problems is generally carried out using specific analysis tools, such as finite element analysis software packages. It is a requirement for all EASL engineers to be able to pre-empt the results of complex problems provided by analysis tools by having a thorough understanding of the basis of how the tools solve the problem.

These steps ensure that EASL can supply clients with a clear, and effective service for providing structural analysis services. Pending the desired outcome or decisions based on results, EASL can ensure that the best qualified engineers with the right specialisations are available to arrive at the most cost-effective and successful solution.

If you'd like to find out more about our previous work, take a look below at our case studies. If you'd like to find out more about our related services, take a look below at our solutions and other services. To see how EASL can help with your structural analysis needs, email us on enquiries@easl-stress.co.uk

Related Services

- Fracture Mechanics
- Pipe Stress Analysis
- Seismic Analysis