



## Finite Element Analysis

Finite element analysis is a service provided by EASL to offer clients quick, reliable results to complex problems. EASL are experts with this method, frequently providing internal and external training courses on related software such as ABAQUS.

Whether it's stress, thermal, seismic or strains on materials, Finite Element Modelling allows a solution that is more time efficient and economical than alternative experiments and calculations.

### What is FEA?

Finite Element Analysis (FEA) is a computerized numerical method used to solve complex practical problems. These can range from predicting how a structure reacts to an applied force, vibration, heat, fluid flow to a multitude of other physical effects. FEA reaches an approximate solution to any complex engineering problem by discretization of the geometry into manageable or finite elements which can be used to solve mechanical, thermal, magnetic or potential difference equations.

Benefits of FEA include:

- The ability to handle complex geometry and loading conditions.
- Its application to areas such as structural, dynamics and heat transfer analysis.
- Safe simulation of potentially dangerous environments and failure modes impractical to test.
- The ability to predict failure of real life structures subjected to a wide range of loading conditions.
- Low cost solutions and rapid evaluation time for most applications.

### EASL FEA Services

EASL provides professional and reliable FEA consulting services ranging from concept design, development and maintenance of engineering components. The company has a proven track record of providing FEA consultancy services to clients in the civil nuclear, power generation, defence, oil and gas and manufacturing industries.

EASL engineers have PhD's or master's degrees in various engineering fields and collectively have vast experience in engineering design using a variety materials such as metal, concrete, plastic and elastomers. We offer FEA consulting services to a wide range of areas including:

- Stress Analysis
- Heat Transfer Analysis
- Seismic Analysis
- Fatigue Analysis
- Vibration Analysis
- Impact Analysis
- Cracked Body Analysis

At EASL advanced FEA is conducted and supported using a wide range of software packages including ABAQUS, ANSYS, DYNA, NASTRAN, DIANA, THE, FLUSH and SHAKE. If you'd like to find out more about our previous FEA work, take a look at some of our case studies below.

EASL provides clients with professional FEA consulting services from designing new engineering concepts and optimizing existing components to extend their safe lifetime operation. We can offer clients FEA consulting services in accordance with the British, American and European design codes with particular expertise in ASME III, PD5500, ASME B31.3, BS806, BS5950 and BS5400. Support our clients with reliable FEA simulation results allows an understanding and improvement to engineering designs, providing an efficient, cost-effective insight.

If you have any further questions about FEA or you'd like to enquire about our services or training, contact us today.



#### Related Services

- Computational fluid dynamics (CFD)
- Design Code Assessment
- Design