



FEC

Engineering
Consultants

FE Consultants

FEC is an engineering consultancy specialising in engineering design and advanced analysis. Increased competition for operators and equipment suppliers requires more efficient designs, prolonged service life and better solutions to the most difficult problems. FEC understands these issues and strives to operate at the forefront of engineering design and analysis to provide the best solutions for our clients.

FEC operates with a simple organisational structure where our clients often deal directly with the engineer responsible for their job. This assures quick responses for job completion and reduced costs when compared to traditional consultancy structures.

At FEC we thrive on understanding complex problems and are focused on delivering a high return on investment for our clients.

The team at FEC uses fundamental engineering knowledge and analytical skills applied with sound reasoning and creative thinking. With experience in drafting, fabrication, analysis tools and site work, we understand how solutions are implemented in the real world.



Advanced Analysis

We thrive on analysis of difficult problems and work with our clients to determine the best solution. From design optimisation to review of defects and wear issues, we are experienced in the application of advanced analysis techniques. Once we have identified the problem's constraints, we will work with our client to develop a solution. The following tools are commonly used:

- Practical experience in association with process engineers, fabricators and inspectors.
- Engineering science and fundamental analysis
- Finite element analysis (FEA)
(linear, non-linear, heat transfer, post-buckling)
- Computational fluid dynamics (CFD)
(pressure, mixing, combustion, heat transfer, wear)
- Experimental stress measurement.

Fitness-for-service

Working with industry since 2000, we have experience in a full range of fitness-for-service evaluations. We can critically evaluate the condition of equipment with respect to the following:

- General corrosion
- Local corrosion
- Cracking
- Weld defects
- Dents, distortion, buckling
- Pressure excursions
- Temperature excursions
- Creep.

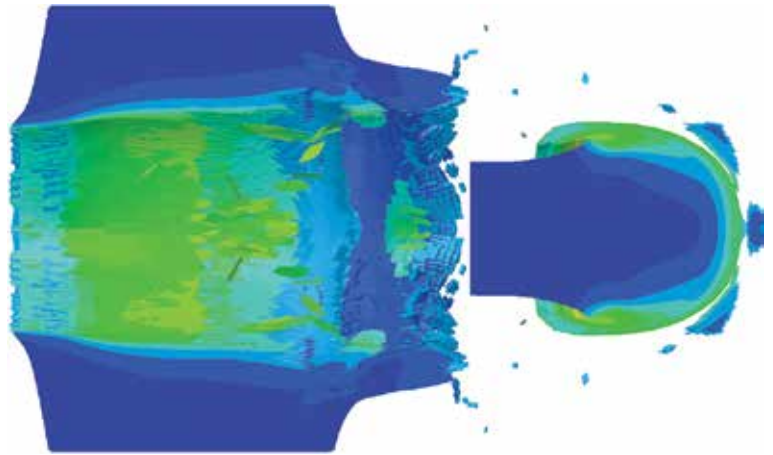
Fitness-for-service evaluations require the use of many fundamental engineering analyses such as stress analysis, buckling analysis and fracture mechanics. We work with our clients to help determine the goal of the evaluation and deliver a solution that meets their needs.

Engineering Design Services

FEA/CFD

We have been undertaking Finite Element Analysis (FEA) since 2000 and have been involved in a large variety of simulations. These range from ballistic studies and impact simulations to machine component and pressure equipment design. FEC have also used FEA for failure analysis to determine the root cause of the failure.

CFD is another of our core capabilities. With experience in analysing pressure drop, wear, heat transfer, mixing and combustion, FEC have all the fluid flow problems covered. We have analysed steady and transient flows, incompressible and weakly compressible fluids, forced and natural convection, thermal conduction, chemical reacting flows, wall functions, multi fluid flows, constitutive equations, phase changes, bubbles and droplets, erosion and many others.



Pressure Equipment, Tank & Piping Design

Being actively involved in the development of pressure equipment standards and having familiarity with fabrication, operations and regulations, FEC is positioned to deliver customer driven solutions for pressure equipment, tanks and piping designs. We have design history with all of the local and most of the International Codes and utilise industry leading software to provide the optimal solution.

Upon completion of any design our clients are provided with a comprehensive report of the design, conclusions and calculations.

Drafting

In-house drafting services enable FEC to efficiently complete design and drafting jobs. Using experienced draftsmen and designers we have a focus on practical and manufacturable designs. Services are available for 2D or 3D drafting from concept through to fabrication.

Structural Design and Verification

FEC regularly provide structural designs to AS4100 and AS3990. Covering a range of industrial projects such as skids, pipe supports, frames, drill masts and cranes. We have experience in new designs, failure investigations, repairs and life evaluations.



Contact

For further information on all of our services, general guidance or specific advice in our area of expertise, please contact the team and we will be ready to help.



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