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Encompassing a wide range of subjects, NAFEMS publications are available in the following areas:

- Acoustics
- Buying Guides
- Composites
- Contact & Friction
- Dynamics & Vibration
- Fracture Mechanics
- Non-Linear Analysis
- Reviews & Studies
- Thermal Analysis

- Benchmark Tests
- CFD
- Conference Proceedings
- Data Exchange
- Education & Training
- Linear Analysis
- Quality Assurance
- Seminar & Course Proceedings

Every year, NAFEMS produces approximately 8-10 publications including textbooks, reports, benchmarks and journals ensuring that the most up-to-date and relevant information is available to NAFEMS members and the wider analysis community. All new publications are added to the Corporate e-Library so can be utilised by those covered within the subscription.

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Publications Included

The following lists the current publications available within the Corporate e-Library. The content of the e-Library is regularly updated with the latest publications as and when they are produced by NAFEMS.

Acoustics

- How to Get Started In Acoustics Analysis
- Benchmarks for Radiation and Scattering of Sound

Analysis Management

- How to Manage Finite Element Analysis
- Quality Standard Supplement - Engineering Simulation - Quality Management Systems - Requirements
- Management of Finite Element Analysis - Guidelines to Best Practice
- SAFESA Quick Reference Manual
- SAFESA Management Guidelines
- SAFESA Technical Manual
- Quality Assurance Procedures for Engineering Analysis
- Quality Management in Engineering Simulation: A Primer for NAFEMS QSS

Beams, Plates & Shells

- Basic and Shape Sensitivity Tests for Membrane and Plate Bending Finite Elements
- Benchmark Tests For Various Finite Element Assemblies - Thin Shells
- Fundamental Tests for Two and Three-Dimensional, Elastoplastic Small Strain Finite Element Analysis
- Shell Finite Elements Evaluation Tests
- A Review of Benchmark Problems for Geometric Non-Linear Behaviour Of 3D Beams And Shells (Summary)
- A Review of Benchmark Problems for Geometric Non-Linear Behaviour of 3-D Beams & Shells
- A Set of Benchmarks for Free Vibration of Thin Shell Finite Element Assemblies - (Summary Report)
- Benchmarks for Membrane and Bending Analysis of Laminated Shells Part 1: Stiffness Matrix and Thermal Characteristics
- Benchmarks for Membrane and Bending Analysis of Laminated Shells Part 2: Strength Analysis

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CFD

- International Journal of CFD Case Studies - Vol 1
- International Journal of CFD Case Studies - Vol 5
- International Journal of CFD Case Studies - Vol 6
- International Journal of CFD Case Studies - Vol 7
- International Journal of CFD Case Studies - Vol 8
- International Journal of CFD Case Studies - Vol 9
- Why do Computational Fluid Dynamics
- How to Get Started With CFD
- How to Plan a CFD Analysis
- How to Understand Computational Fluid Dynamics Jargon
- How to Ensure that CFD for Industrial Applications is Fit For Purpose
- How to Undertake a Smoke Movement Analysis
- 1st NAFEMS Workbook of CFD Examples
- NAFEMS Awareness Seminar on Industrial CFD and the Move Towards Coupled Analysis
- Introduction to Grid & Mesh Generation for CFD

Composites

- How to Analyse Composites
- Finite Element Analysis of Composite Materials
- Composite Benchmarks
- Benchmarks for Composite Delamination

Contact & Friction

- A Review of Contact and Friction in Finite Element Analysis
- Finite Element Analysis of Contact and Friction -A Survey
- Benchmark Tests for Finite Element Modelling of Contact, Gapping and Sliding
- Advanced Finite Element Contact Benchmarks

Creep

- How to Undertake Creep Analysis with Finite Elements
- Fundamental Tests of Creep Behaviour

Data Management

- How to Use STEP Geometry for Engineering Analysis
- Data Exchange in Finite Element Analysis - A Functional Requirement Specification
- GEM - Data Requirements for Analysis Modelling
- The GEM Modelling Methodology
- A Guide to Shape Models & Relevant Resource Parts in STEP
- GEM - A Guide to Implementation Techniques
- GEM - Specification of Demonstration Problems
- GEM - Improving Integration in Engineering Analysis
- GEM - Report on Solution of Users' Problems
- Product Data Management and the Engineering Analysis Environment
- State of the Art Review in CAE Data Management
- Simulation Data Management Survey Report

Dynamics

- How to do Seismic Analysis Using Finite Elements
- Free Vibration Benchmarks - Vol 1
- Free Vibration Benchmarks - Vol 2
- Free Vibration Benchmarks - Vol 3
- Selected Benchmarks for Natural Frequency Analysis
- Selected Benchmarks for Forced Vibration
- A Finite Element Dynamics Primer
- Role of Damping in Finite Elements
- Role of Damping in Finite Elements (Summary Report)
- Fundamental Tests for Forced Vibrations of Linear Elastic Structures

Fatigue & Fracture

- Finite Element Based Fatigue Calculations
- How to Undertake Fracture Mechanics Analysis
- 2D Test Cases In Linear Elastic Fracture Mechanics (Summary)
- 2D Test Cases In Linear Elastic Fracture Mechanics
- Three Dimensional Test Cases in Linear Elastic Fracture Mechanics
- 2D Test Cases in Post Yield Fracture Mechanics
- NAFEMS Awareness Seminar on Advances in the Use of Numerical Fracture Mechanics

Geotechnical

- How to Undertake Finite Element Based Geotechnical Analysis

Introductory

- Why do Finite Element Analysis
- How to Understand Finite Element Jargon
- How to Choose a Finite Element Analysis System
- How to Choose a Finite Element Pre- and Post- Processor
- How to Get Started with Finite Elements
- How to Plan a Finite Element Analysis
- How to Interpret Finite Element Results
- How to Integrate CAD and Analysis
- Why do a Multi-Physics Analysis
- Tips and Workarounds for CAD Generate Models - Revision 2

NAFEMS Workbook of Examples

- The Use of FE Analysis in the Design Process
- NAFEMS Advanced Workbook of Examples
- NAFEMS Advanced Workbook of Examples and Case Studies - Vol 2
- A Roadmap of NAFEMS Documents
- An Introduction to the Use of Material Models in FE
- Autosim - Current & Future Technologies in Automotive Engineering Simulation (CAE)
- A Designer's Guide to Simulation with Finite Element Analysis
- Knowledge Base - Don't Forget the Basics
- A Guide to NAFEMS Publications

Joints

- State of the Art Review-Weld Simulation Using Finite Element Methods
- Procedural Benchmarks for Common Fabrication Details in Plate & Shell Structures
- FEM Idealisation of Joints

Miscellaneous

- Benchmark Tests for Various Finite Element Assemblies
- Linear Static Benchmarks - Vol 1
- Linear Static Benchmarks - Vol 2
- A New Look at Element Shape Parameters
- An Introduction to Hierarchical Displacement Elements and The Adaptive Technique
- Distortion Measures for Quadrilaterals with Curved Boundaries
- The Standard NAFEMS Benchmarks
- Benchmarks for Finite Element Pre-Processors
- NAFEMS Background to Benchmarks
- Shape Measuring Criteria and the Establishment of Benchmark Tests for Single Membrane Elements (Summary)
- A Study of European Commission Funded Research that incorporates the use or development of Continuum solution
- Report on the Vendor Challenge

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Non-Linear

- How to Tackle Non-Linear Finite Element Analysis
- Benchmark Tests for Geometric Non-Linearity
- Finite Element Benchmarks for 2D Beams and Axisymmetric Shells Involving Geometric Non-Linearity
- Review of Benchmark Problems for Non-Linear Material Behaviour
- Case Studies in Non-Linear Analysis
- A Review of Benchmark Problems for Geometric Non-Linear Behaviour of 3D Beams and Shells
- Finite Element Benchmarks for 2D Beams and Axisymmetric Shells Involving Geometric Non-Linearity (Summary)
- Selected Benchmarks for Material Non-Linearity - Vol 1
- Selected Benchmarks for Material Non-Linearity - Vol 2
- Background to Material Non-Linear Benchmarks
- Background to Finite Element Analysis of Geometric Non-linearity Benchmarks
- Introduction to Non-Linear Finite Element Analysis
- Understanding Non-linear Finite Element Analysis through Illustrative Benchmarks
- An Introduction to Modelling Buckling and Collapse

Non-Deterministic
Why do Probabilistic Finite Element Analysis

Optimisation

- Why do Design Optimisation

Pressure Vessels

- The Application of Finite Element Modelling to Pressure Vessel Design Codes

Thermal

- How to Undertake Finite Element Based Thermal Analysis
- Benchmark Tests in Thermal Stress Analysis Using Finite Element Method
- Benchmark Test for Thermal Analysis (Summary Report)

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