



Computer Systems

High speed digital computer systems are used by engineers at Aptech Engineering Services, Inc. (APTECH), as an extension of their capabilities in the performance of structural analysis. By always seeking up-to-date programs for problem application, coupled with in-house development of new and efficient methods, we continually expand our capabilities. APTECH's library of available computer programs provides considerable flexibility in handling structural problems involving:

- ⊗ Arbitrary Geometries
- ⊗ Pressure, Mechanical, Seismic, and Thermal Loads
- ⊗ Non-axisymmetric Loads
- ⊗ Orthotropic Properties
- ⊗ Crack Initiation, Propagation, and Life Predictions
- ⊗ Estimation of Thermal Upset or Weld Residual and Restraint Stresses
- ⊗ Large Deflection Elastic-Plastic Solutions
- ⊗ Dynamic Analysis of Large Multi-Degree-of-Freedom Systems
- ⊗ Two- and Three-Dimensional Transient and Steady-State Transfer Solutions
- ⊗ Transient and Steady-State Creep Solutions
- ⊗ Dynamic Impact Problems

The following codes are routinely used by APTECH personnel:

	Descriptions												Analytical Solutions														
	Method Type	Geometry			Loads						Heat Transfer	Stress Analysis	Fracture Mechanics	Dynamic Analysis	Fluid Flow Analysis												
	Finite Element	Finite Difference	Boundary Integral	General Integral	1 - D	Axisymmetric	2 - D	3 - D	Temperature	Mechanical	Gravitational	Steady State	Transient	Elasticity	Plasticity	Creep	Fracture	Fatigue	Stress Corrosion	Free Vibration	Forced Vibration	Shock	Seismic	Fluid Dynamics	Pipe Break	Press. Distress/Shock	
BIGIF			✓	✓	✓		✓	✓	✓							✓	✓	✓									Fracture Mechanics
CAEPIPE	✓						✓	✓	✓	✓	✓									✓							Piping
ROTOR		✓			✓		✓	✓		✓	✓	✓															Turbine Analysis
TJLIFE		✓																					✓	✓	✓		Fracture Mechanics
CAESAR II	✓						✓	✓	✓	✓	✓																Piping
DYNA 3D	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	General Purpose
FMTTOOLS				✓									✓			✓	✓	✓							✓		Fracture Mechanics
PREFIS																✓	✓	✓							✓		Fracture Mechanics
BALIFE															✓	✓	✓	✓									Probabilistic Forecasting
CORSEPT								✓	✓																		Corrosion Susceptibility
COSMOS/M	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓					General Purpose
CYCLE LIFE		✓		✓				✓	✓							✓		✓									Creep Fatigue Life
TUBELIFE III								✓	✓						✓												SH/RH Tubing
FACLIFE								✓	✓																✓		Flow Accelerated Corrosion
HEADER		✓		✓				✓	✓						✓												Headers
HTLIFE								✓	✓						✓												Fired Heater Tubes
SAFEGIRTH								✓	✓						✓												Piping Girth Welds
SAFERING								✓	✓							✓	✓										Generator Retaining Rings
SAFESEAM								✓	✓						✓												Piping Seam Welds
TFDGEN								✓	✓						✓	✓	✓										Tolerable Flaw Diagrams
TubeAlert								✓	✓						✓												SH/RH Tubing
TubeMod								✓	✓						✓										✓		SH/RH Tubing
WWLIFE								✓	✓			✓				✓											WW Tubing

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