Specialized engineers at GAI Consultants conduct seismic analysis and develop designs for steel and concrete buildings, foundations, bridges, retaining walls, dams, piping, and other structural systems and components. Our structural engineers and geologists routinely design structures that support vibratory or impact loadings and are experienced in evaluating site-specific seismic risk and ground-motion parameters.

Skilled engineers and demonstrated modeling techniques means a cost-effective approach to analyzing need and designing solutions that fit.

With a thorough understanding of major design codes for seismic loading, dynamic analyses techniques, and computer codes, GAI designs structures that support vibratory or impact loadings, and facility structures that resist blast loadings. The engineering expertise of our professionals that contributes to this design process includes structural dynamics and the vibration theory, geotechnical engineering and soil dynamics, structural design, and computer coding.

GAI has engineering professionals that specialize in nonlinear dynamic modeling and that provides a cost-effective approach to analyzing and designing chemical manufacturing facility structures that resist blast loadings. We also develop mitigation designs for noise and vibration problems using empirical and theoretical models and provide field measurement and monitoring services.

Clients benefit from GAI’s detailed knowledge of the theories, algorithms, and assumptions behind special- and general-purpose finite element programs, because we can select the appropriate model that fits each client’s specific need and develop a practical solution. Our experience in applying numerical techniques to solve continuum mechanics problems involves stress analysis, heat transfer, soil and rock mechanics, stability, and flow.
GAI uses these techniques effectively for structural design and structural remediation projects as well as for failure analyses.

GAI investigates structure failures to determine the cause, performs theoretical and experimental stress analyses, and evaluates the effects of wind, water, soils, ice or temperature loads on structures. Our professionals also analyze structures and foundations subject to vibrations and construction loads.

GAI has been inspecting structures for more than 50 years and our experience includes inspecting and documenting the condition of concrete, steel, timber, and masonry structures. Our inspections include underwater structures and tall structures. In addition, HAZWOPER-trained personnel conduct structural inspections at hazardous waste sites.

Using models to cost-effectively analyze and design structures, and applying numerical techniques to solve continuum mechanics problems, GAI produces designs for structural remediation and failure analyses that work for our clients.

Seismic Investigation and Stress Analysis Services

- Vibration and seismic analyses
- Noise and vibration problem mitigation
- Load and stress determinations
- Failure investigations
- Theoretical and experimental stress analyses
- Analysis and simulation software development
- Continuum mechanics problems numeric solution
- Instrumentation and on-site testing
- Field measuring and monitoring

GAI Services Summary

- Airport Planning and Design
- Bridge and Structure Inspection and Design
- Coal Combustion Residuals Management
- Construction Inspection and Management
- Cultural Resources Management
- Economic Analyses and Strategies
- Electric Transmission Design and Siting
- Environmental Engineering
- Environmental Studies, Species Studies, Permitting
- Gas Pipeline Surveying and Mapping
- Geographic Information Systems (GIS)
- Geotechnical Engineering and Geology
- Impoundment and Landfill Permitting and Design
- Land Development Engineering
- Landscape Architecture and Design
- Master Planning and Urban Design
- Mechanical, Electrical, Structural Engineering
- Natural Gas FERC Certification and Permitting
- Nuclear Energy Engineering Support
- Right of Way and Appraisal Support
- Land Surveying and Mapping
- Transportation Planning and Design
- Utility Management Consulting
- Water, Stormwater, Wastewater Management