

Investigative Science and Engineering, Inc.

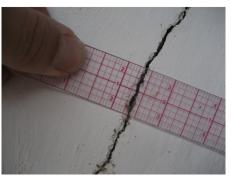
"The Leader in Scientific Consulting and Research"

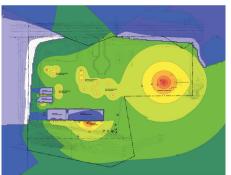


www.ise.us













Investigative Science and Engineering, Inc. (ISE) is a San Diego based woman-owned, small business supplying technical and scientific consulting, research and development (R&D), and mission support to the engineering, environmental, industrial, legal, military, forensic, and scientific communities, since 1997.

For over 25 years, ISE has sustained itself entirely, building a reputation for excellence in custom and quality solutions for our clients. With in-house technology and instrumentation comparable to some university laboratory settings, ISE is one of the best-equipped technical firms of its type. Our company offers a unique blend of intensive interdisciplinary acumen, with a great deal of experience solving problems for a spectrum of different industries, including work on a variety of large infrastructure projects.

ISE has extensive experience performing technical analyses and monitoring in the diverse areas of vibration, acoustics and noise control, signal processing, air-quality and GHG analyses, photometric studies, GIS, structural historical monitoring, compliance with CEQA/NEPA, and writing Environmental Impact Reports/Studies (EIR / EIS). Additionally, ISE offers extensive cyber security solutions, threat avoidance and counter-measures technology to our clients.

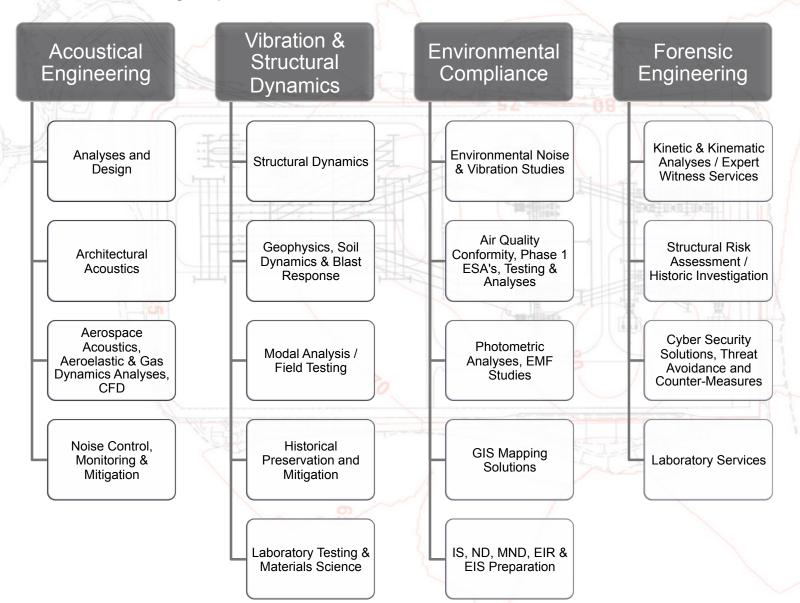
We have been listening and responding to the needs of not only our past and present clients, but also the growing and changing requirements and applications within the technological, scientific, transportation, and environmental industries.

ISE has very successfully employed a commercialization process of reinvestment of earned revenues toward new research and development of innovative, or more advanced, methodologies, systems, and analytical tools. These have been, in turn, incorporated into our professional services and customized solutions offered to clients.



Services Offered By ISE.

ISE has a solution 'building block' for most complex engineering and environmental problems experienced in today's world. Our expertise includes the following disciplines and services, as detailed below.





ISE is an industry leader in the field of acoustical analyses. Having well over 3,500 diverse technical assessments and reports under our belt, you can imagine that there is very little we haven't seen. Blasting noise, construction noise, structural acoustics, aircraft noise, rail and subway noise, environmental effects, underwater acoustics, acoustic signatures from rockets - chances are we've looked at it.

The acoustical engineering services provided by ISE are designed to provide assistance to groups and individuals requiring a timely solution to both large and small-scale problems.

Acoustical Analysis & Design

ISE's staff is formally trained in the requisite fields of acoustics, fluid mechanics, and gas dynamics allowing us to analyze a problem at a much more sophisticated and technical level than our competitors.

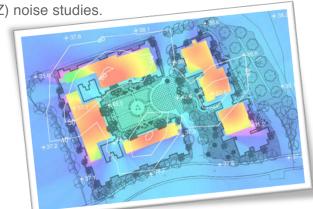
All work is structured to correspond with project siting, design sequencing, and applicable federal, state, and local ordinances and requirements.

Typical environmental noise and general acoustical services provided by ISE include:

- Noise analysis for environmental impact studies compliant with CEQA, NEPA, EPA, and HUD.
- Advanced acoustical modeling using various tools including the IS³ field propagation model.
- OSHA and Cal-OSHA Dosimetry studies and hearing conservation programs.
- Descriptive acoustics and contouring using GIS methods.
- Master Plan acoustical assessments, General Plan studies and updates.
- Roadway, rail, and airport land use compatibility noise studies.
- FHWA Traffic Noise Model (TNM) assessments.
- DoD Air Installation Compatibility Use Zone (AICUZ) noise studies.
- FAA Integrated Noise Model (INM) assessments.
- Industrial and construction worker noise analyses.
- Mitigation monitoring programs and systems.
- Acoustical barrier design.
- Underwater acoustics.
- Spectral, octave-band, and sound power analyses.
- Active and passive noise control technology.
- Acoustical laboratory testing.

"I have worked with Dr. Rick for over 20 years. He has always provided exactly what's needed to complete and move forward with our projects. ISE has always been on the cutting edge with new technology and techniques to provide the information we need for success."

> Chuck Isbell -Vice President Operations Warmington Residential





Architectural Acoustics at ISE

ISE is one of only a small handful of firms offering a complete suite of acoustical engineering services tailored specifically to architectural applications and compliance with applicable federal, state, and local building requirements.

Services under this category have historically included:

- Noise analysis for environmental impact studies compliant with CEQA, NEPA, EPA, and HUD.
- Advanced acoustical modeling using various tools including the IS3 field propagation model.
- Acoustical space design for audio-visual applications.
- Descriptive acoustics and contouring using GIS methods.
- Reverberation time testing (RT_{60}).
- LEED compatible acoustical analyses.
- Field sound transmission classification (FSTC) testing.
- Normalized isolation classification (NIC) and Outside-Inside Transmission Classification (OITC) and mitigation compliance.
- Field Impact Isolation Classification (FIIC) testing.
- HVAC and industrial noise source mitigation.
- 'Phantom Noise' location and mitigation.
- Active and passive noise control technology.
- Acoustical laboratory testing.





Aerospace Acoustics, Aeroelastic & Gas Dynamics Analyses, CFD

ISE is one of the only consulting firms specializing in the commercial solution of aeroelastic and high-speed flow problems for clients. Because we're trained as aerospace engineers, we tend to look at all structures as they actually are - semi-rigid objects subjected to inertial, elastic, and aerodynamic forces. This insight gives ISE an advantage when it comes to analyzing complex engineering problems for our clients.

Further, ISE's staff is experienced in computational gas dynamics and the associated thermodynamic challenges. We know that you can only push a fluid so far until the underlying acoustic theories have to step-aside for a more complex and rigorous treatment.

Some of our past efforts have involved:

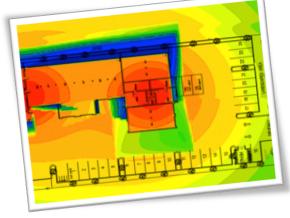
- Acoustic analysis and prediction of high-pressure gas pipeline blow-down events.
- Aeroelastic analysis and design on consumer products.
- Low speed and high speed wind tunnel testing protocols for clients.
- Dynamic divergence, flutter, and plunge-stability studies for clients.
- Vortex-induced (wind turbine) noise assessments for clients.
- Active and passive noise control technology.
- Acoustical laboratory testing.

Computational Fluid Dynamics (CFD) at ISE

ISE are experts in the field of computational fluid dynamics (CFD) and wave propagation analysis. We utilize, and have developed numerous predictive computer codes to help our clients understand the effects and impacts from subsonic, transonic, and supersonic flows associated with acoustic wave propagation, aerodynamic flow, rotor and fan wash, vortex shedding, and high pressure sources.

Our CFD capabilities include, but are not limited to the following:

- Predictive modeling strategies.
- Advanced acoustical propagation analysis.
- Fluid-structure interaction studies including addedmass effects.
- Dynamic vortex flutter and instability analysis.
- Predictive model development for client-specific needs including interactive CFD acoustical models.





ISE's Noise Monitoring & Noise Control Solutions

ISE specializes in custom noise control and monitoring solutions for every imaginable industry application. Whether it is something as simple as a diffractive noise barrier, or active monitoring and control - we've got you covered.

Typical noise control and mitigation solutions include:

- Standard barrier design and abatement following applicable federal (FHWA), state, and local protocols.
- Advanced acoustical modeling using various tools including the IS3 field propagation model.
- Field monitoring, Mitigation Monitoring and Reporting (MMRP) compliance, and active warning systems.
- Biological noise monitoring and compliance in accordance with USFWS and CDFG protocols.
- Active and passive noise control solutions.
- Small-scale anechoic laboratory testing.

"ISE's quick response and detailed report enabled our project to comply with regulations while still moving forward efficiently."

> President Greenstone Environmental





ISE is a recognized expert in the field of structural and soil dynamics having developed several cuttingedge techniques for the analysis of these types of problems. If it has mass and vibrates, we can develop an analytical solution for it, and apply it empirically in the field. We've examined all manner of surface and insitu transit ground motion (railways, roadways, subways), construction site impacts, historical building preservation, random vibration, forced motion (modal) vibration, and blasting prediction and monitoring, ranging from small construction projects to underground atomic testing.

As with our acoustical services, the vibration engineering services provided by ISE are designed to provide assistance to groups and individuals requiring a timely solution to both large and small-scale problems. Projects where frequency response and operational performance are critical, will find our services indispensable.

Structural Dynamics Analysis at ISE

ISE maintains extensive capabilities in the field of structural dynamics, having worked with solid and fluid mechanical systems, seismic propagation, fluid-structure interaction problems, and the development of new predictive theories.

Typical services we provide within this discipline include the following:

- Continuous and Normal Modes Analysis.
- Experimental Modal Analysis.
- Fast Fourier Transform (FFT), Discrete Fourier Transform (DFT), and discrete time series analyses.

"ISE provided exceptional service to the Sunrise Powerlink project team. They responded to numerous emergencies and fast track situations with the highest level of professionalism and an eye to creative problem solving. I recommend their services without equivocation."

> Dayle Cheever -Project Manager-San Diego Gas & Electric Company

- System Identification modeling, experimental damage detection and monitoring.
- Structural risk testing / Historic structural monitoring and protection.
- Finite Element and Boundary Element Analyses.
- Impulsive response design and mitigation.





Geophysics / Blast Response Mitigation at ISE

ISE has been working for close to two decades on innovative and unique engineering solutions to the problem of measurement and quantification of in-situ dynamic wave response. We have analyzed groundblasting response on everything from conventional bench blasting to underground nuclear testing.

Our service areas in this discipline include:

- Passive and active monitoring using geophone or seismometer arrays.
- Shear wave velocity testing, up-hole, down-hole seismic testing.
- Structural response and ground coupling.
- Sensitive site compliance testing and site selection due diligence.
- Material and soil damping estimations including soil-structure transmissibility testing.
- Construction and operational vibration isolation and avoidance.
- Blast mitigation control using analytical and experimental methods.
- Surface wave propagation analysis and damage avoidance.





Modal Analysis Services at ISE

Modal analysis is the experimental determination of the vibrational properties (i.e., normal modes) of a physical structure or object. ISE is one of the only consulting firms outside of a university setting, which maintains a fully functional modal analysis testing laboratory, with field capabilities. If the problem is finding out the dynamic behavior of something, then ISE has the tools and expertise to find the answer.

Our modal analysis services include the following:

- Generalized frequency response analysis.
- Natural frequency and mode shape characterization.
- Civil structure field surveys including historic structural testing and abatement.
- Engineering damping estimates.
- PSD and time-domain analyses of complex systems.
- Laboratory testing including active shaker excitation and uniaxial shake table measurements.
- Equipment failure and cycle fatigue analysis.
- Structural and mechanical health monitoring including residual force analysis and failure progression analysis.





Laboratory Shake Table Testing at ISE

ISE houses a complete dynamic analysis laboratory consisting of an APS Dynamics long stroke shake table, capable of small-scale modal analysis and seismic testing from DC to approximately 200 Hz. Our table is capable of recreating complex waveforms at up to 50 pounds peak force, or a velocity up to 1000 mm/s over 160 mm of linear travel. We have assisted our clients in measuring the response characteristics of specimens for research, aviation, space, military and general civil engineering applications. This table is also used to calibrate every piece of dynamics equipment in our laboratory.

Past applications which clients have found useful include:

- Dynamic response characterization.
- Fatigue testing.
- Product and prototype testing.
- Scientific research and investigations.
- Forensic investigations.

ISE's physical science laboratory is traceable to standards set forth by the American National Standards Institute (ANSI), the American Society for Testing and Materials (ASTM), the International Organization for Standardization (ISO), and the National Institute of Standards and Technology (NIST). We maintain our own Rubidium atomic time and frequency standard accurate to 10⁻¹⁰ seconds.





ISE offers a full suite of specialized technical consulting services geared towards problems experienced in the environmental community. In fact, our clients appreciate our advanced capabilities and services in even the most technically demanding areas of environmental engineering, where our innovative solutions have always saved time and money through reduced mitigation requirements.

Specifically, ISE provides expert consultation, field monitoring and technical assessments, in the fields of environmental acoustics/noise control, vibration, air-quality/GHG conformity, photometric/lighting studies, compliance with CEQA/NEPA, and preparation of Environmental Impact Reports/Studies (EIR / EIS).

Additionally, ISE offers specialized technical and laboratory testing services which are beneficial to environmental planners and project applicants, including electromagnetic assessments, mass spectrographic testing of gaseous samples, and GIS mapping solutions.

Environmental Noise Control at ISE

ISE provides a full spectrum of acoustical consulting services necessary for compliance with environmental regulations, including the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA). Our capabilities include the ability to perform intensive site noise monitoring, ambient level determination and verification, site and topographic noise modeling, noise contour generation, and design-phase noise mitigation.

Typical environmental noise and general acoustical services provided by ISE include:

- Noise analysis for environmental impact studies compliant with CEQA, NEPA, EPA, and HUD.
- Advanced acoustical modeling using various tools including the IS3 field propagation model.
- Descriptive acoustics and contouring using GIS methods.
- Roadway, rail, and airport land use compatibility noise studies.
- Air Installation Compatibility Use Zone (AICUZ) noise studies. Master Plan acoustical assessments, and General Plan aircraft studies and updates.
- Industrial and construction noise analyses.
- OSHA and Cal-OSHA Dosimetry studies and hearing conservation programs.
- Mitigation monitoring programs and implementation, short- and long-term noise monitoring programs.
- Acoustical barrier design for roadways and industrial sources.
- Spectral analyses, sound power analyses, FFT analysis.

"I became acquainted with Rick Tavares and ISE in the mid 1990's when I was the City Planner for a coastal San Diego community. As a retiree and community volunteer, I recommend the services of ISE to community members and institutions when they face the likelihood of excessive noise created by neighboring outdoor commercial activities. During the almost 20 vears that I have seen their work, ISE's studies and mitigation measures have always been well documented, creative and well within the parameters of professional standards."

> Bill Weedman -City Planner, Retired and Community Volunteer



Environmental Vibration Solutions at ISE

ISE is a recognized leader in mechanical and dynamic vibration analysis, and has a full range of portable modal analysis testing equipment capable of extracting frequency, damping, and mode shape information from structures such as buildings, railcars, automobiles, bridges, aircraft and more. This information enables our engineers to generate a complete "picture" of the test specimen's dynamic behavior. Input excitation levels of up to 5,000 pounds force are possible using our modally tuned 12-pound sledgehammer.

The vibration services provided by ISE are designed to provide assistance to groups and individuals requiring a timely solution to both large and small-scale dynamic excitation problems. Clients with projects where frequency response, vibratory interference, and operational performance are critical, will find our services indispensable.

ISE's environmental vibration solutions include the following state-of-the-art services:

- Complete modal testing to determine dynamic structural response.
- Free- and forced-response monitoring of any civil engineering structure.
- Building vibration impact studies (monitoring, historic, residential).
- Remote blast monitoring and recording system deployment.
- Ground transmissibility and wave attenuation studies.
- Damping estimations for both soil and structural systems.
- Seismic loading analyses and failure determination.
- Vibration reduction and base isolation strategies for mechanical and civil structural systems.
- Residential, commercial, and mass transportation vibration monitoring.
- Elastic residual force analyses methods for structural damage detection and health monitoring.
- Construction vibration analyses (drilling, tunneling, blasting).
- Laboratory testing using in-house 100-pound shake table.





Air Quality Conformity at ISE

ISE offers a comprehensive suite of air quality and air toxics analyses geared principally towards prediction and mitigation compliance of air emissions due to proposed project design standards. Each air quality impact assessment (AQIA) prepared by ISE is tailored to the client's individual needs and is consistent with known engineering practices and constraints.

ISE's air quality analyses are unique, technical, substantiated by defined scientific calculations and chemistry, and traceable to EPA protocol.

Common air quality studies and assessments performed by ISE include:

- Industrial and commercial air quality analysis studies.
- Rapid screening of potential project impacts using ISE's BTU air emissions model.
- Advanced air quality sampling and laboratory testing using Mass Spectrometry residual gas analysis.
- Site hazard screening for Radon (Rn), carbon monoxide (CO), hydrogen sulfide (H₂S), and trace EPAspecific criteria pollutants.
- National Institute of Standards and Technology (NIST) chemical screening of residual gasses against 196,000 different compounds.
- Greenhouse gas / global warming (AB 32) project compliance assessments using the United Nations Intergovernmental Panel on Climate Change (IPCC) scientific protocol.
- Construction, mining, and grading fugitive dust impact assessments.
- Emissions inventory assessments using Federal EPA and CARB modeling.
- Line source dispersion modeling for carbon monoxide (CO), oxides of nitrogen (NOx), oxides of sulfur (SOx), and respirable particulate matter (PM10, PM2.5).
- Federal (EPA) and State (Cal-EPA) compliance surveys.
- Toxic risk assessments including diesel emissions surveys.

"CEOA level noise and air quality studies prepared by ISE have been instrumental in identifying cost effective mitigation measures."

> Phillip L. Hinshaw - Principal A.D. Hinshaw Associates



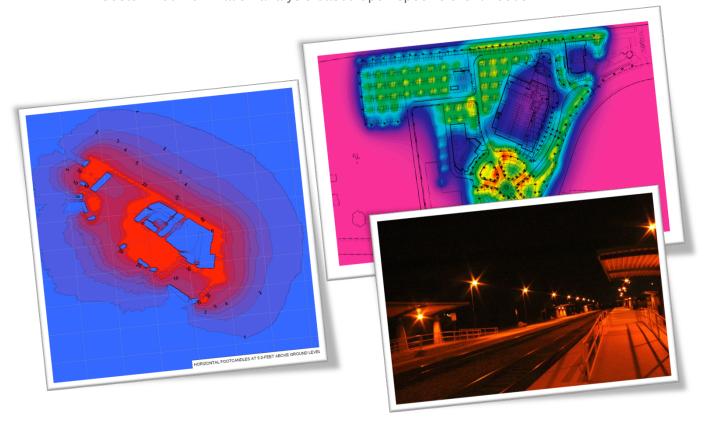


Lighting & Illumination Assessments

ISE provides a complete range of lighting and illumination analysis services geared towards commercial and industrial compliance, as well as general safety concerns addressable through the Occupational Health and Safety Organization (OSHA) and the National Institute of Occupational Safety and Health (NIOSH). ISE utilizes state-of-the-art equipment and procedures to provide lighting solutions at reasonable costs to our clients.

ISE has provided lighting analysis solutions for schools, playgrounds and athletic fields, commercial centers, parking areas, industrial settings, and various secure sites. Lighting and illumination services provided by ISE include:

- Industrial and commercial lighting analysis and studies.
- OSHA / NIOSH compliance safety surveys.
- Illumination field modeling using the ISE *Lightmap* field propagation program for visible, nearinfrared, and ultraviolet portions of the electromagnetic spectrum.
- Illumination contour visualization using GIS mapping methods.
- Planning and design of light critical areas.
- Customized illumination analysis based upon specific client needs.





Electromagnetic Pollution Control at ISE

ISE provides a complete suite of electromagnetic field (EMF) and Radio Frequency (RF) services designed to detect interference and anomalies, as well as develop comprehensive mitigation solutions and site development plans. All of ISE's EMF and RF assessment services are performed by engineers extremely knowledgeable in the physics of electromagnetic field propagation, and who are also FCC licensed amateur radio station operators.

Typical support services include:

- EMF/RF field and modulation detection over usable electromagnetic spectrum from 100 KHz to 300
- EMF/RF field mapping with Geographic Information System (GIS) Applications.
- FCC OET Part 65 compliance studies for cell tower and large antenna systems.
- Field strength modeling and terrain propagation analysis.
- EMF/RF mitigation designs including RF room shielding and conduit field reduction.
- Interior EMF/RF pollution and workplace evaluations.
- Covert surveillance detection and hidden transmitter location within structures.





Environmental GIS Solutions at ISE

ISE provides a comprehensive set of cost-effective Geographic Information System (GIS) mapping services built around the Delorme XMAP GIS suite, QGIS, and Google Earth Professional. Our GIS capabilities are tailored to specific client needs and project reporting requirements. We are one of the only firms capable of performing detailed scientific analyses and accurately representing the findings in the GIS format.

Typical GIS services provided by ISE include:

- Geospatial analysis, data processing, and descriptive statistics including variational calculus methods.
- Site presentation based upon various physical science metrics.
- Geometric and spatial constraints assessments using various primary data sources.
- GIS-based network analyses including, surface, gradient, aspect, and visibility analysis of engineering problems.
- Remote sensing using aerial/satellite databases and field deployment systems.
- GIS-based project analyses and feasibility studies.



"I have worked on several projects with Dr. Tavares ("Rick") as a GIS Analyst, CAD Drafter and Technical Illustrator since the mid 90's. His thorough knowledge of the subject matter and the science behind the data being portrayed on a map makes for some incredibly informative data visualization. If you want a one-stop shop for your engineering and environmental solutions, hire Investigative Science and Engineering. They know what they're doing!"

> Jim Rinks -GIS, CAD and Data Visualization Consultant



Environmental Site Assessments / Due Diligence & Reporting at ISE

ISE provides a broad suite of environmental site assessment and due diligence services geared towards commercial and industrial site compliance, as well as general safety concerns addressable through the Occupational Health and Safety Organization (OSHA) and the National Institute of Occupational Safety and Health (NIOSH). ISE utilizes state-of-the-art equipment, techniques, and procedures to provide significant peace-of-mind to our clients.

Environmental Site Assessment / Due Diligence & Reporting services provided by ISE include:

- General Phase 1 Environmental Site Assessments (ESA's) for real estate transactions.
- OSHA / NIOSH / ASTM compliance safety surveys and investigations.
- Rigorous site due diligence background investigations, historic use investigations, and chain-of-title investigations.
- State-of-the-art GIS mapping methods of potential site impacts with RCRA and CERCLA compliance.
- Indoor air quality testing including Radon screening using mass spectrographic methods.
- California Accidental Release Prevention (CalARP) seismic risk assessments.
- Preparation of environmental documentation including CEQA and NEPA technical assessments, environmental initial studies (IS), mitigated negative declarations (MND), federal no significant impact statements (FONSI), and Environmental Impact Reports (EIR's) / Environmental Impact Statements (EIS's).





Forensic Engineering

When knowing the correct cause-and-effect of an engineering problem is of paramount importance, think ISE. We approach the problem of engineering forensics, not as others do, using rules-of-thumb or best consensus, but from the fundamentals of physical science - where there can only be one answer, the correct one.

ISE specializes in general accident reconstructions, as well as kinetic (properties of force) and kinematic (properties of motion) analyses. We also perform environmental effects analysis to determine whether or not something is a man-made failure, or just the environment wearing it out. So whether it's construction defect issues, accidents, or the catastrophic failure of an engineering system, we're here to provide the answers.

...and should you need us, it's good to know that ISE has worked in the expert witness field for close to two decades, providing expert opinions and testimony, scientific demonstrations for trial settings and mediations, as well as bringing attorneys and other experts 'up to speed' in scientific principles that might be tangential to their area of expertise.

Kinetic and Kinematic Analyses / Expert Witness Services

At the heart of any forensic problem involving the laws of physics are two fundamental quantities: the path of the action under investigation (kinematics), and the forces involved to produce the observed motion (kinetics). ISE utilizes its strong background in engineering mechanics to solve problems of this type, and applies the findings to clients' specific needs.

Typical forensic services under this category include:

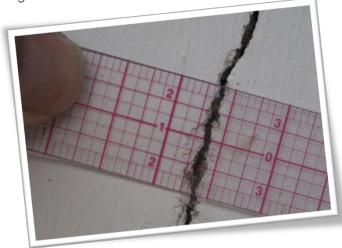
Forensic field examinations, inspections, and documentation under full chain of custody.

 General and specific particle motion analysis using vector methods.

- Linear and non-linear motion analysis under multi-degree-of-freedom conditions.
- Determination of specific impulse. momentum, and force properties to accident problems.
- Computer modeling and simulations.
- Litigation scientific research assistance.
- Scientific coaching.
- Expert witness services.

"Not only is Dr. Tavares extremely knowledgeable in his field, but he also works hard to assist in the problem solving aspects of his assignment."

> Sandra J. Brower - Attorney -Sullivan Hill Lewin Rez & Engel





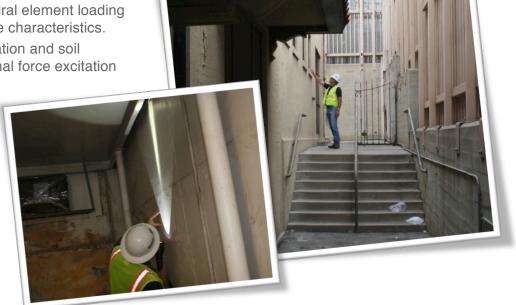
Forensic Engineering

Structural Risk Assessment / Historic Preservation

ISE's historic preservation services are a natural extension of our structural dynamics services which we have applied successfully to dozens of historic properties, including ones on the National Register. We take the concept of nondestructive testing to its logical conclusion by combining wave theory with structural mechanics in archaic, antiquated, and historic structures. Since any structure can only move a certain number of ways based upon its geometry, mass, and material stiffness, we utilize this knowledge to our advantage to 'see' inside the structure to determine structural integrity, anomalies, and areas of weakness and/or potential failure before they occur.

All historic preservation work is performed in accordance with Code of Federal Regulations, 36 CFR Part 61 (Secretary of the Interior's Standards). Typical structural risk assessment services provided by ISE include:

- Background search of properties, significance, and history.
- GIS mapping of historic assets and past aerial mapping.
- Physical inspection and structural reporting of dated, questionable, or historic structures.
- Pre- and Post-construction structural surveys.
- Preparation of Historical Property Preservation Plans (HPPP).
- Seismic construction and blast modeling and monitoring.
- Nondestructive testing of structural elements, or entire structures, using forced excitation (modal analysis) methods or random vibration methods.
- Location of weak and/or potential areas of failure.
- Determination of structural element loading using dynamic response characteristics.
- Determination of foundation and soil transmissibility to external force excitation





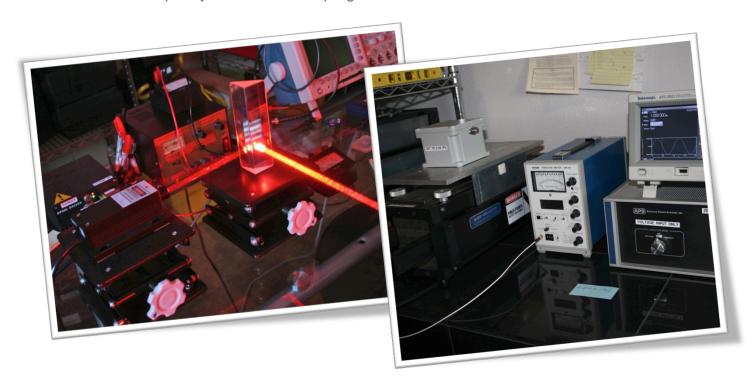
Forensic Engineering

Laboratory Services

ISE maintains a secure physical science laboratory traceable to standards set forth by the American National Standards Institute (ANSI), the American Society for Testing and Materials (ASTM), the International Organization for Standardization (ISO), and the National Institute of Standards and Technology (NIST). We maintain our own Rubidium atomic time and frequency standard accurate to 10⁻¹⁰ seconds.

Our laboratory has the following capabilities assisting any forensic engineering project:

- Complete acoustical and dynamic modal analysis laboratory.
- Physical inspection and microscopy facilities.
- Complete acoustical testing laboratory.
- Cyber security testing, threat avoidance and counter-measures technology.
- Forensic electronics examination.
- Uniaxial dynamic shake table capable of recreating complex waveforms up to 50 pounds peak force, or a velocity up to 1000 mm/s over 160 mm of linear travel..
- Complete mass spectrographic analysis capabilities from 1 to 300 AMU.
- Electrostatics and laser test benches.
- Time and frequency domain data sampling.





Rick Tavares, Ph.D.

Dr. Tavares has over 20 years of experience in the analysis and solution of engineering and scientific problems dealing with the transient and forced vibratory response of linear and nonlinear systems within the structural, mechanical, and aerospace fields. As an expert in the field of wave theory and propagation, his work has emphasized interactions of solid and fluid mechanical systems including seismic propagation, acoustic sources including sonar, and gas dynamics. He has worked extensively in the field of composite structural design, as well as dynamic modal analysis, having pioneered new analytical methodologies for civil and aerospace engineering applications.

Dr. Tavares is a published author who has written in excess of 3,500 peer-reviewed technical, engineering, and scientific reports, including journal publications, articles, and scholarly books, examining such diverse topics as general physics, astrodynamics, wave propagation, mass spectroscopy, gas dynamics, structural and environmental acoustics, air pollution transport, structural dynamics and control systems, and electromagnetic propagation. He is the author of numerous predictive programs in the fields of acoustics, computational fluid mechanics, structural dynamics, seismic analysis, composite analysis, modal analysis, and both finite and boundary element analyses.



EDUCATION

Ph.D. Civil Engineering, University of California - Irvine

Concentration: Geophysics of seismic wave propagation in elastic solids due to conventional and nuclear blasting.

Dissertation: Determination of Blast-Induced Dynamic Soil Response Using Axisymmetric Boundary Elements.

Summary: A computationally efficient solution strategy for the prediction of blast-induced ground motion using the Boundary Element Method. The clear advantages of this new approach are in its ability to capture the actual physics of the problem as well as providing an insight into the effects of blast-frequency on the actual observed response. The developed boundary element provides the necessary nexus between the classical theory and the empirical response characteristics.



M.S. Structural Engineering, University of California - San Diego

Concentration: Aerospace composite structural engineering / dynamic structural analysis.

M.S. Mechanical Engineering, San Diego State University

Concentration: Experimental dynamic analysis, modal analysis, control system development, industrial robotics.

Thesis: A Computational Method for Determining Composite Rectangular Plate Deflections, Stresses, and Natural Frequencies Subject to Hygrothermal Effects.

Summary: Theoretical development and modeling of rectangular generally anisotropic composite plates and panels used in the aerospace industry. The solution approach, an adaptation and extension of the Rayleigh-Ritz method, predicted aggregate system response due to simultaneous mechanical deflections (extension, bending and twisting), hygrothermal environmental effects, and varying initial/boundary conditions. The model also predicted first natural frequency and mode response under combined states of stress.

B.S. Aerospace Engineering and Engineering Mechanics, San Diego State University

Concentration: Composite structural analysis, aerospace flight systems engineering, aircraft and missile control and design.

PUBLICATIONS

What's The Matter ?!?

Kiwibird Press (ISBN: 978-0-9885401-4-9)

Co-Author: Karen Tavares

What's The Matter ?!? is a whimsical guide to the periodic table of the elements and the 'stuff' that makes up matter itself. This manuscript is currently in progress with an anticipated publication date in late 2017.

The Guru's Guide to the Universe... A Practical Guide to Modern Physics.

Kiwibird Press (ISBN: 978-0-9885401-0-1) April 2013

The Guru's Guide to the Universe is written for anyone with a keen interest in understanding applied physical science. It is a richly illustrated text, utilizing a lighthearted style to convey the qualitative and quantitative essence of the subject matter including the topics of physical measurements, scalars and vectors, matter, atomic theory and the elements, motion, momentum, friction, Newton's Laws, work and energy, collisions. rotational mechanics, fluid mechanics and wave motion, heat, temperature, the Laws of Thermodynamics, fundamental forces in nature, electricity and magnetism, light, and special and general relativity.



Analysis of Composite Structural Materials

Kiwibird Press (ISBN: 978-0-9885401-2-5) January 2015

College level text on aerospace structural analysis with an emphasis on composite materials and their use in engineering, the macromechanical behavior of single ply lamina, micromechanical behavior of composite lamina, generalized lamination theory, plastic analysis and failure theories of orthotropic materials, laminated plate analysis, analysis of composite beams, columns, and beam-columns, stress concentrations in orthotropic plates, fracture mechanical models in composite systems, bending of laminated cylindrical and spherical shells, orthotropic circular structural elements, composite joint analysis, energy methods in composite analysis, finite element solution techniques, and environmental effects in composites.

Astrodynamics and the Mechanics of Orbital Motion

Kiwibird Press (ISBN: 978-0-9885401-3-2) October 2015

College level textbook on astrodynamics and orbital mechanics primarily targeted towards the undergraduate astrophysics, aerospace engineering, or astronomy audience. This book bridges the gap between classical orbital theory, and engineering application, by providing the necessary derivational solutions in a real-world setting. This text also includes a new method chapter on iteratively updating orbital elements based on visual observations to predict future motion and reacquire lost satellites.

The book provides a review of vector and tensor concepts, the mechanics of an orbiting body, coordinate system transformations, orbital properties, basic and advanced orbital maneuvers, time-of-flight solutions to the flight equation, the Gauss and Kepler problems, lunar orbits, interplanetary orbits, ballistic missiles. reacquisition of targets using orbital element iteration, perturbation theory, applications to aerospace engineering and general astronomy, and computer solution techniques.

Determination of Blast-Induced Dynamic Soil Response Using Axisymmetric Boundary Elements University of California 2001

Theoretical development of a mathematical model, using the boundary integral solution method, for the prediction of generalized conventional- and nuclear-induced ground wave motion.

Improved Method for Determining Surface Wave Blast Response

International Society of Explosives Engineers (ISEE) 2001

Development of a simplified boundary element solution for the prediction of conventional construction blasting ground motion.

Modeling of Rayleigh Wave Vibration in Elastic Solids due to Construction Blasting Journal of the Institute of Noise Control Engineering (INCE) 2001

Application of a simplified boundary element solution for the prediction and mitigation of surface wave production in an unbounded elastic medium due an impulsive blasting force.



Improved Modeling of Electrical Substation Equipment for Seismic Loads

International Conference on Structural Engineering Mechanics and Computation, Capetown, SA. 2001 Co- Authors: Rick Tavares, Ph.D., Pardoen, G.C., Villaverde, R.

Improved methods for dynamic response and seismic load modeling of electrical substation equipment through a combination of experimental and analytical studies.

State of Arizona Mine Inspection Procedures Manual

Office of the Arizona State Mine Inspector 2000

Complete rewrite of the official Mine Inspection Procedures Manual pursuant to the 1993 Mining Code of the State of Arizona.

Noise Effects on Least Bell's Vireo: Studies of Military Helicopter Activity

Hubbs-Sea World Research Institute 1997

Co-Author: Patrick Mock. Ph.D.

Field investigation examining the acoustical and biological effects of aircraft noise at MCAS Pendleton to the Least Bell's Vireo (Vireo bellii pusillus).

Calculation of Sound Pressure Levels Due to Isentropic Free Expansion in a Pipeline

ASME Energy Week '97 Conference Paper 1997

A mathematical model describing the acoustic pressure levels and shock discontinuity due to the free adiabatic expansion of an isentropic gas under high pressure.

Vibratory Influence Zone Calculation Using Modified Modal Impact Methods

Proceedings of the Institute of Noise Control Engineering (INCE) 1996

A computational method for the rapid determination of vibratory influence zones due to blasting based upon the solution of a constrained SDOF damped harmonic oscillator system with linear material damping.

Using Experimental Modal Data to Detect Damage in a Space Truss

25th American Institute of Aeronautics and Astronautics (AIAA) SDM Conference 1993

A computational method using combined residual force analysis and sensitivity variations to predict the presence of damage and added-mass to a lightly damped, freely supported, space truss.

A Computational Method for Rectangular Plate Deflections, Stresses, and Natural Frequencies Subject to Moisture and Thermal Effects

California State University (CSU) 1992

A computational method to determine composite material rectangular plate deflections, stresses, and natural frequencies subject to various hygrothermal and edge loading effects using a modified Rayleigh-Ritz derivation.



ENGINEERING CLASSES TAUGHT

Adjunct Professor for multiple semesters in the following courses in the Colleges of Aerospace Engineering and Civil Engineering at San Diego State University:

Engineering Mechanics / Statics (AE 200)

Statics and Dynamics (EM 220)

Theory of Elasticity (EM 621)

Fluid Mechanics (EM 340)

Aeroelasticity and Acoustics (AE 480)

Experimental Aerodynamics (AE 303)

Solid Mechanics Lab (CE 302)

Short Course on Experimental Modal Analysis

Advanced Engineering Mathematics (E 280)

Composite Structural Analysis (EM 530)

Theory of Plates and Shells (EM 610)

Rocket and Space Propulsion (AE 530)

Astrodynamics (AE 320)

Introduction to Solid Mechanics (CE 301)

Seminar on Civil Acoustical Engineering

Experimental Structural Analysis (CE 496)

HONORS AND AWARDS

Lifetime Member with Honors

Tau Beta Pi - Xi Chapter California April 1991

Tau Beta Pi is the only engineering honor society representing the entire engineering profession. It is the nation's second-oldest honor society, founded at Lehigh University in 1885. Membership is conferred for distinguished scholarship and exemplary character in the field of engineering.

Degree of Excellence

National Forensic League June 1983

The National Forensic League is a non-partisan, non-profit educational honor society established to encourage and motivate American high school students to participate in and become proficient in public speaking. The League is the America's oldest and largest high school speech and debate honor society.

CERTIFICATIONS

National Security Clearance - Secret

OSHA 40-Hour Hazardous Waste Operations

Certification

Cal-OSHA First Responders Certification

Registered Environmental Assessor Class I (06775)

Confined Space Entry Training Certification

MSHA Mine Safety & Hazard Certification

FCC Amateur Station Operator - Technician Class (KJ6OZY)

United States Department of Defense

Occupational Safety and Health Administration (OSHA)

29 CFR 1910.120(e), (q)(6)(ii)

State of California 8 CCR 5192(e), (q)(6)(B)

California Environmental Protection Agency

OSHA 29 CFR 1910.146

MHSA PL 91-173, PL 95-164

Federal Communications Commission



Karen Tavares

Karen Tavares has been working in the fields of electrical, electronic, and systems engineering for over 20 years. She has extensive experience in the development of mixed analog/digital PCBs and multi-component instrumentation systems, including schematic and circuit board layout design, prototyping, testing, and integration, as well as design of EMI protection for electronics. Her work has been used for a wide variety of applications, including control-feedback systems, data acquisition units, cryogenic instrumentation, low and high temperature superconductor sensor controllers for magnetometers, fiber-optic data transfer systems, headmounted video displays, and even virtual reality systems.

As the principal owner of ISE, Ms. Tavares has performed innovative custom data acquisition system design, integration, testing, and field deployment for many project specific applications, including environmental monitoring. She has been responsible for managing projects, and coordinating with outside vendors, as well as supervising and training multi-disciplinary technical staff in the effective field implementation of scientific instrumentation for numerous application-driven projects.



EDUCATION

B.S. Electrical Engineering, San Diego State University

Concentration: Digital signal processing and control systems.

Teaching Credential Program, San Diego State University

Concentration: Single Subject Credential in Science/Chemistry

Post-Baccalaureate Coursework / Professional Development

San Diego State University - Chemistry, Organic Chemistry, Computer Science University of California San Diego (Extension) – *Education* California State University San Marcos - German Language



PUBLICATIONS

What's The Matter ?!?

Kiwibird Press (ISBN: 978-0-9885401-4-9)

Co-Author: Karen Tavares

What's The Matter ?!? is a whimsical guide to the periodic table of the elements and the 'stuff' that makes up matter itself. This manuscript is currently in progress with an anticipated publication date in late 2017.

HONORS AND AWARDS

Presidential Service Award

La Jolla, California, June 1984

Awarded for continued achievements in service to the community, and leadership exhibited as the student President of Service League.

CERTIFICATIONS

CPR/AED Certification	American Heart Association - License CA20091
California Preliminary Single Subject Credential – General Science/Chemistry	California Commission on Teacher Credentialing - Document # 160103032
Cal/OSHA 24-Hour First Responders Certification FCC Amateur Station Operator Technician Class (KJ6OZV)	State of California 8 CCR 5192(e), (q)(6)(B) Federal Communications Commission - License 0020834271



ISE has completed thousands of projects for clients ranging from small to large commercial venture groups, public utility companies, infrastructure and defense-related government agencies, long-range scientific and planning projects, research with academia and the scientific community, and all manner of forensic and due-diligence work, as well as strictly confidential assessments.

Below is a list of some of the individuals, corporations, and governmental entities to whom we have rendered technical and scientific consulting services.

101 Coastal Investors, LLC

602 Investments, Inc.

1007 Investments, Inc.

A.D. Hinshaw Associates

Acacia Ventures, LLC

Action Marketing

ADJ Enterprises

Aero Drive Two, LLC

Affinis Environmental Services

AGRI Service

Aleto Construction

All Phase Enterprises, LLC

All Star Equities, LLC

Allard Jansen Architects, Inc.

Allied Industrial Systems, Inc.

Alpine 21, LLC

Alpine Meat Company

ALTI Corp.

Amber Homes, Inc.

Ameribuilt Construction, Inc.

American Horizons Ltd.

Apostolic Assembly Church

Aqua Clean Car Washes

Architects Hanna Gabriel Wells

Arizona State Mine Inspector

Asaro, Keaky, Freeland & McKinley, LLP

Autowerks, Inc.

Avalon Bay Communities, Inc.

AVL North America. Inc.

Axiohm Components

Baker Electric Inc.

Barona Band of Mission Indians

Barratt American

Baulot, LLC

Beach and Bayside Vacations

Bennett Realty Group

Birmingham Air National Guard

Black Gold, LLC

Blackhawk Development

Blackstone Real Estate Advisors

Bonita Park LLC

Boyle Engineering Corp.

Bradley Land Group

Brawley Elementary School District

Breeze Hill, LLC

BRG Consulting, Inc.

Brian F. Smith & Associates

Bridge Housing Corporation

Bridge Investment Group Partners

Brown and Caldwell

Buie Communities

Buie/Irish Ventures

Bunton Construction

Burkett & Wong

Bush Construction & Development

C&M Door and Trim, Inc.

Cajon Valley Union School District

Cal Sun Development Company

Cal-Americas

Cal-Republic Company

California Air National Guard

California Equities

Caltrans District 11

Calvary Chapel San Diego

Canyon Crest Estates, LLC



Capital Income Properties, Inc.

Carltas Company

Carmel Cove Homeowners Association

Carter Collision Service Inc. Carter Reese & Associates Castle Arch Real Estate, LLC Catellus Residential Group

Catholic Archdiocese of San Diego

CBRE

CDS Architects & Engineers

Centex Homes

Centex Southern California

CESN Construction

Chalice Unitarian Universalist Congregation

Chelsea Investment Corp.

Chevron Corp.

Child Abuse Prevention Foundation

City of Blythe City of Brawley City of Calexico City of Carlsbad City of Chula Vista City of Del Mar

City of El Cajon City of Encinitas

City of Escondido City of La Mesa

City of Laguna Niguel City of Los Angeles

City of Napa

City of National City City of Oceanside City of Poway

City of Rancho Verona City of San Clemente City of San Diego

City of San Diego Water Utilities Department

City of San Francisco City of San Marcos City of Santa Rosa

City of Vista City of Windsor Classic Residences By Hyatt

CMS Development

ColRich Construction, Inc.

ColRich Residential

Community Housing of North County

Community Housing Works Concordia Communities, LLC Construction Projects Supervisor Cornerstone Communities

Cornerstone Lofts, LLC

Cottage Development Company Country Glen Residential, LLC

County of Imperial County of Los Angeles County of Riverside

County of Riverside Code Enforcement

County of San Diego County of San Luis Obispo

County Sanitation Districts of Los Angeles County

Covo Automotive Center Crest View Properties

Cryogenic Control Systems, Inc. Cuatro Development Inc.

Cubelis Corp.

Culbertson, Adams & Associates Curtis Scott Englehorn & Associates

D.R. Horton, Inc. D'Alton Partners

Dartmouth Development Dat-U-Joe Realty, Inc. David Evans & Associates David R. Shibley and Associates

Del Cerro Chevron Del Mar Heritage, LLC

Del Webb

Dennis Company Precision Tool

Deutsch & Associates

Developers Investment Group, LLC Development Contractor, Inc.

Development Design & Engineering, Inc.

Dewald & Associates

DMJM + Harris



Domestic Architecture

Don Edson Architect, Inc. AIA Douglas Martin Associates

Drath, Clifford, Murphy, Wennerholm & Hagen

Du Charme Architecture

Durkin Development Company

Earthlite, Inc.

East County Sand, LLC

ECCDC

EDP Products, Inc

Emmerson Construction, Inc.

Encinitas Ford

Environmental Development

Envirotreat, Inc. Fairfield Realty, LLC Faith Community Church

Far West Industries

Fieldstone Communities. Inc. Foothills Christian Church

Forecast Homes Forensic Investigation

Fort Dix Weapons Test Center Forum Capital Management, LLC Freeman's Construction, Inc. Frosch General Contracting

Fuscoe Engineering G.D.G Incorporated G.M. Brown Construction Garden Communities Gary Engineering, Inc. Gatlin Development GC Properties, Inc.

Geopacifica Geotechnical Consultants Glenwood Development Company

GLUMAC International Gold Coast Development Goldberg Family Trust Golden Door Owner LLC Golder Associates, Inc. Gonva Enterprises, Inc. **GPG** Construction

Grace Community Church

GREAT PLANS in 3D

Greenberg Farrow Architecture Greenstone Environmental

Greenstone Realty Greg Industrial

Greystone Environmental Consultants, Inc.

Greystone Homes, Inc.

GTB Company Gunner Milo Inc. **H&W Custom Builders** Habitat For Humanity Hale Engineering

Hallmark Communities

Hamann Construction Company

HBA Architects

HDR Engineering, Inc. Health Care Group Helix Environmental Hensel Phelps Herrick Development

High Tech High Hilltop Group, Inc. Hoehn Motors Group Holiday Inn Express

Home Capital Development Group

Hunters Run Apartments

Hyatt Corp.

Imperial Stations, Inc.

Imperial Unified School District Innovative Resort Communities

Integral Communities Integral Partners, LLC

International Design & Management

Irish Setters, Inc.

Irwin Architectural Group

IS Architecture

J. Whalen Associates, Inc. J.P. Construction Company Jack Henthorn & Associates

Jackson Drive Group

Jackson-Pendo Development

Jacobs Center for Neighborhood Innovation



James Leary Architecture & Planning Jamison Builders General Contractors

Janez Genesee, LLC.

JCC Homes JH Partners Jif-Pak

John DeWald & Associates, LLC

John Laing Homes JP Engineering, Inc. JPM Design Management JRMC Real Estate, Inc. K. Hovnanian Homes

KB Homes

KEA Architecture and Development

Keeton Kreitzer Consulting

Kelly/JRM Palomar Airport Road 1, LLC

Ken D. Smith Architects

KMA Architecture & Engineering

Koll Development Group La Costa Engineering La Flor de Michoacan

La Jolla Citizens Foundation

La Jolla Construction & Development Services, Inc.

La Jolla Financial, Inc. Laidlaw Waste Systems, Inc. Lakeside Land Company, Inc. Land Planning Consultants Land Planning Consultants Lanikai Management Company

Latham & Watkins LLP

Latitude 33

Law Offices of David S. Bristol Law Offices of Douglas Harty Law Offices of Gregory D. Hagen Law Offices of Wesley W. Peltzer Leming and Associates, Inc.

Lennar Communities Liberty Storage

Lighthouse Builders, Inc. Lighthouse Ventures, LLC

Little Diversified Architectural Consulting

LLS Engineering, Inc.

Loranda Corp. Los Willows, LLC.

Lucas & Mercier Development Lusardi Construction Company M&H Property Management, LLC.

MAAC Project - Community Development

Department

Magma Power Company

Manning Homes

Mansour Architectural Corp.

Manzanita Partners

Marathon Construction Corp.

Marbella Country Club

Marine Corps Air Station Camp Pendleton

Marine Corps Air Station Miramar Marker Development Company, Inc.

MATCOM, LLC McCabe Harris Inc.

McCullough-Ames Development, Inc.

McMillin Development MD Chula Vista, LLC Merkel & Associates, Inc. Mestre Greve Associates Michael Crews Development

Midland Development Monrovia Nursery Company Montessori Preschool - Carlsbad

Mooney & Associates Morrow Development Inc.

MSA Enterprise

Murchison & Cumming Murphy's Market

Murrieta Valley Unified School District

MWI Plumbing Nasland Engineering

Naval Staff Civil Engineering SCE FLAG/ICQ On-

Station Housing

Naval Station San Clemente Island

Naval Surface Warfare Center Corona, Gage &

Standards Laboratory Neighborhood Healthcare New Covenant Tabernacle



Newland Communities

Newport News Shipbuilding North County Transit District

North River Investment, LLC

North Star Homes, LLC

NTDSTICHLER

O'Brien Communities

Ogden Environmental and Energy Services, Inc.

Old School House

Olivenhain Municipal Water District

Online Builders

Ord & Rodgers Construction, Inc.

Otay Land Company P & D Consultants. Inc.

Pacific Coast Conservation Alliance

Pacific Coast Development Pacific Gulf Properties Pacific Oil Company

Pacific Properties and Development, LLC

Pallamary & Associates

Pardee Construction Company

Park Crest. LLC Paul Ecke Ranch Paydar Properties

PBS&J Petco

Pettit Kohn Ingrassia & Lutz, PC

PH Prime Construction Pinnacle Communities

PLP, LLC

Prentiss Properties Prevailing Wind Power Priest Development Corp. **Project Design Consultants** Prometheus Laboratories Prospect Point Development Prudential Real Estate Investors

Public Art and Architecture

Pulte Homes Pure Fitness Quantum II, LLC Quinn Communities Ramona Transmissions

RAN and Associates

Rancho Glens Estates Homeowners Association

Rancho Verona Rancon Real Estate **RBF** Consulting RCM Properties, LLC RD Brown Company, Inc. **RD Investment Properties**

Real Estate Development Services

REC Consultants. Inc. Redstone Capital **Revnolds Communities**

RG 112, LLC

RGC Courthomes, Inc. Richardson Partners. Inc. Rilington Communities RMCI Development

Robert A. McQuead Architect Robert Thompson Architect Robertson's Concrete

Robinson Electric Rose, Munns & Chin Rossi Architecutre

RREEF Management Company

SADI. LLC

Salvatore Properties

San Diego County Water Authority San Diego Drums and Percussion San Diego Gas & Electric Company San Diego Habitat for Humanity San Diego Housing Commission

San Diego Metropolitan Wastewater Dept.

San Diego State University

San Diego Transit Development Board San Diego Yacht & Breakfast Company

San Elijo Hills, Inc.

San Luis Rey Enterprises

Santa Rita Investment Company Self-Realization Fellowship Church

Senior Resource Group, LLC Shadow Run Ranch, LLC



Shallal Fuels, Inc.

Shea Homes

Shook Building Systems, Inc.

Shoreline General Contractors, Inc.

Siemens-Duewag

Signature Capital Realty

Silver Creek Properties

Silvergate Fallbrook Retirement Residences

Simac Construction, Inc. Simon & Wong Engineering Site Design Associates, Inc.

Skandia Real Estate Group Smith & Butler

Smith Consulting Architects Smith's Food and Drug Centers

Snow Construction Solana Mesa Partners South Bay Baptist Church South Beach Restaurant South Coast Development

Southern California Housing Development Corp.

Southwest Affordable Housing

Spectrum Communities Spherion Legal Group Spieth & Wohlford, Inc.

Spring Creek Commercial Ventures, LLC

Squier Properties

St. Gregory of Nyssa Greek Orthodox Church

Standard Pacific Homes Starwood Hospitality State of Arizona State of California Stephen Rosetta

Stewardship Foundation Stone-Ray Development

Stoneridge Centre Partners, LLP

Studio 4 Architects Suds Sports Grill

Sully Miller Contracting Company

Sunrise Development, Inc. Sunset Corporate Center Sweetwater Chevron

Synergy Dance

Szytel Engineering & Surveying, Inc.

T&B Planning Consultants, Inc.

Tabata Properties Taylor Woodrow

Tech Business Center, LLC The Blackstone Group

The Chase Group

The Colony at California Oaks The Corky McMillin Companies

The Garrett Group, LLC

The Home Depot The Josepho Group The Kennedy Group

The Kevane Company, Inc. The Lightfoot Planning Group

The MacKenzie Group The Marina Group The McClenny Corp. The Morgan Group, Inc. The Prescott Companies

The Wardens & Vestrymen of All Saints Church

The Related Companies of California

The Trane Company The Welk Group, Inc. Thomas Enterprises, Inc. Tower on 5th, LLC

Trane Company

Trans West Housing, Inc. Trimark Pacific Homes, L.P. **Trinity Housing Group TRS Consultants**

U.C. Campus Planning

U.S. Air Force

U.S. Customs & Border Patrol

U.S. Department of General Services

U.S. Department of Justice

U.S. Housing and Urban Development

U.S. Marine Corps

U.S. Navv

United Dominion Realty Trust University of California, San Diego



University of San Diego

Urban Habitat, Inc.

USA Properties Fund

Valley Center View Properties

Van Vechten Construction

Vandermost Consulting Services, Inc.

Vista Industrial Products, Inc.

Vista Irrigation District

Vista More Plaza, LLC

VSS, LLC

Wakeland Housing and Development Corp.

Wal Mart, Inc.

Warmington Residential - Southern California

Division

Warner Springs Estates HOA

Waters Edge Elsinore, LLC

West Air Mechanical

West Lilac Farms I & II, LLC

West Senior Living R/E, LLC

Westbridge Capital, LLC

Western National Realty Advisors

Western Pacific Housing

Western States Engineering & Construction, Inc.

Westmount Properties, LLC

Westward Homes/Westward Mortgage

Wheeler, Wimer, Blackman & Associates

Whitaker Investment Corp.

Wild Oats Markets, Inc.

William Lyon Homes, Inc.

Wilson Elser Moskowitz Edelman & Dicker, LLP

Wohlford Land Company, LLC

Worden, Williams, Richmond, Brechtel, & Gibbs

Worldwide Petroleum Company

WS Management

Wunderlin Engineering, Inc.

Zephyr Partners

Zijlstra Architecture



Past ISE Projects

ISE's personnel have prepared thousands of technical engineering assessments, and environmental compliance studies, for a wide variety of applications including transportation and infrastructure projects, defense-related systems, and commercial land development work.

A sampling of our past commercial projects is shown below. This list does not include certain projects contracted as attorney-client privileged work products, confidential client projects, or projects requiring a national security clearance.

4S Ranch Planning Area 38 Site Assessment, Architectural Acoustical, Sound Transmission Classification (STC/OITC) Assessments

4S Ranch Planning Area 40 Acoustical & Air Quality Conformity Assessments

6th Ave Apt Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC) Testing

8th Street Lotting Plan Air Quality Conformity Assessment / Environmental Permitting

22nd & Commercial Acoustical Assessment

24-Hour Fitness Acoustical Compliance Testing

32nd Street Rowhomes Acoustical Assessment

54th Street Apartments Acoustical Assessment

190th Street Development Acoustical & Photometric Assessments

222 Laurel Street Acoustical Assessment

526 Market Street Impact Isolation Classification (IIC) Testing

830 Harbor Cliff Way Acoustical Assessment

1551 Fourth Street Acoustical Compliance

2214 Del Mar Heights Acoustical Assessment

2730 & 2732 First Avenue San Diego Acoustical Site & CCR Title 24 Assessments

2822 5th Ave Sound Transmission Classification (STC/OITC) Assessment

Abram's Southview Tentative Map Acoustical & Air Quality Conformity Assessments

Academy of Our Lady of Peace Acoustical Site Assessment

Action Marketing Acoustical Assessment

Adobe Estates Vista Environmental Impact Report (EIR)

Aero Drive LLC Environmental Permitting

Agua Dulce Terrace Architectural Acoustical Assessment

Aleto Tentative Parcel Map Subdivision Acoustical Assessment

Allstate Moving Facility Acoustical Assessment

Alta Mira Due Diligence Assessments

Altair (Padre Dam) Residential Acoustical Assessment

Anchor Cove Sound Transmission Classification (STC/OITC) Testing

Andora at the Summit Architectural Acoustical Assessment



Andre Condominiums Acoustical Assessment

Antelope Hills Elementary School Tentative Map Acoustical & Air Quality Conformity Assessments

Anza 44 Acoustical & Air Quality Conformity Assessments

Apostolic Assembly Church Acoustical Assessment

Aqua Clean Car Washes Acoustical Site Assessment

Arbor Ranch (Poinsettia Property) Residential Assessment / Architectural Acoustical Assessment

Arbor Terrace Residential Development Acoustical & Air Quality Conformity Assessments

Arizona State Mine Inspection Manual Update

Arizona State Mine Inspector (ASMI) Education & Training Procedures Manual

Arizona State Mine Inspector (ASMI) Surface Mine Rescue Module Development

Arroyos Del Mar MMRP Biological Habitat Noise Monitoring

Aten Ranch Tentative Map Acoustical Site Assessment

Aubrey Glen Residential Development Due Diligence Studies

Aura Townhomes Aircraft Acoustical Compliance Study

Autowerks Relocation Due Diligence Study

Avalon Bay Fashion Walk Acoustical & Air Quality Conformity Assessments

Avocado Highlands Oceanside Environmental Initial Study (IS)

Aztec Court Apartments Acoustical Assessments

B&B Heavy Equipment Acoustical Assessment

Ball Park Skylofts Acoustical Assessment / Sound Transmission Classification (STC/OITC) Testing

Banche Property Acoustical Assessment

Barcelona Apartments Acoustical Assessment

Barona Casino Acoustical Assessment

Barona Casino Acoustical Compliance Monitoring

Barona Motocross Track Acoustical Assessment / On Call Acoustical Engineering

Batiquitos Bluffs Acoustical & Air Quality Conformity Assessments

BCS Federal Aviation Administration FAR Part 150 Study

Beacon Point Sound Transmission Classification (STC/OITC) Testing

Bear Valley Parkway Subdivision Acoustical, Vibration & Air Quality/GHG Conformity Assessments

Bella Lago Subdivision Acoustical & Air Quality Conformity Assessments

Bella Terra Acoustical Assessment

Benson Self-Storage Acoustical Assessment

Bent Avenue Commercial Center Environmental Assessments

Berkov Forensic Electrical Study

Bermuda View Acoustical Assessment

Bernstein Forensic Electrical Study

Beyer Residential Courts Acoustical Assessment



Beyer Residential Courts Architectural Acoustical Assessment

Black Mountain Ranch Residential Acoustical Assessment

Black Rail Residential Acoustical & Air Quality Conformity Assessments

Blythe Recycling Center Acoustical Site Assessment

Blythe Senior Housing Development Acoustical & Air Quality Conformity Assessments

Boekel Tentative Parcel Map 20531 Environmental Assessments

Bogue Property Acoustical Assessment

Bonita Courts Architectural Acoustical Assessment

Bonita Courts Detached Condominiums Due Diligence Environmental Assessments

Bonita Six Unit Rowhomes Acoustical & Air Quality Conformity Assessments

Bonita Valley Community Church Acoustical Site Assessment

Bonsall Town Center Acoustical & Air Quality Conformity Assessments

Brant Street Rowhomes Acoustical Site Assessment

Bratton Acoustical Assessment

Bravo Rodiles Subdivision Acoustical Assessment

Brawley Elementary School Site Air Quality Conformity Assessment Screening

Brawley Low Income Housing Acoustical Assessment

Brayton Way Acoustical Assessment

Breeze Hill Commercial Site Vista Acoustical Site Assessment

Breeze Hill Rock Crushing Acoustical Compliance

Bridgepointe Phase 4 San Diego Acoustical Assessment

Bridgeport Impact Isolation Classification (IIC) / Sound Transmission Classification (STC/OITC)

Briercrest Park Acoustical Assessment / Architectural Acoustical Assessment

Briggs Road Extension Environmental Assessments

Brine Pipeline Acoustical Alignment Study

Broadway Boulevard Extension Air Quality Conformity Assessment

Broadway Manor Acoustical Site Assessment

Bruno's Chevron (Vista) Acoustical & Air Quality Conformity Assessments

Buena Vista Nine Residential Development Acoustical Site Assessment

Buena Vista Park Acoustical & Air Quality Conformity Assessments

Buie Mt Miguel Phase E-2 Acoustical Assessment

Buss Residential Pipeline Assessment

Butterfield Trails Ranch Acoustical & Visual Assessments

C&H Machine Compressor Noise & Vibration Survey

C&M Door Initial Assessment / IS / MND

CA High Speed Rail Historic Structural Acoustical & Ground Vibration Site Assessments (Fresno to Bakersfield Segment)



Cablay Architectural Acoustical Assessment

Cabrillo Development Architectural Acoustical Assessment / Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC) Assessments

Cal-Americas Vista Acoustical Assessment

Calavera Hills Village 'K' Architectural Acoustical Assessment

Calavera Village X (Ravinia) Architectural Acoustical Assessment

Calexico Town Center Acoustical & Air Quality Conformity Assessments

California Oaks Acoustical & Air Quality/GHG Assessments

Calvary Chapel Acoustical & Air Quality Conformity Assessments

Camelot Residential Development Acoustical Assessment

Cameron Property SR-52 Caltrans Condemnation Acoustical Study

Camp Diggity Dog Acoustical Assessment

Campbell Property Encinitas Acoustical Assessment

Candlelight Phase I Acoustical & Air Quality Conformity Assessments

Candlelight Phase II Acoustical & Air Quality Conformity Assessments

Cantarini Ranch Air Quality Conformity Assessment

Canyon Crest Estates Construction Air Quality Conformity Assessment

Canyon Plaza Commercial Center Acoustical Assessment

Canyon Trails Acoustical & Air Quality Conformity Assessments

Capria Architectural Acoustical Assessment

Cardiff Heights at Edinburg Acoustical Assessment

Carlsbad Office Campus Architectural Acoustical Assessment

Carlsbad Pacifica Architectural Acoustical Assessment

Carlsbad Promenade (Koll) Acoustical Site Assessment

Carmel Mountain Ranch Golf Course Reuse Acoustical Assessment

Carmel Valley Apartments Acoustical Monitoring

Carmel Valley Homeowners Association Impact Isolation Classification (IIC) Testing

Carmel Valley Trunk Sewer Acoustical Assessment

Carriage Hill Acoustical Assessment

Carter Collision Center Acoustical Assessment

Casa De Amparo Construction Air Quality Conformity Assessment

Casitas at Spring Creek Acoustical Assessment

Castle Arch Specific Plan Air Quality Conformity Assessment

Cathedral City Specific Plan Amendment Acoustical & Air Quality/GHG Conformity Assessments

CCT Acoustical Complaint Investigation / Expert Witness

Cedar & Kettner Redevelopment Greenhouse Gas (GHG) Study

Cedar Gateway Development Acoustical & Air Quality/GHG Conformity Assessments



Central Imperial Redevelopment Greenhouse Gas (GHG) Study

CESN ELDER Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC) Testing

CESN IRIS Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC) Testing

CESN Playa Blanca Conversion Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC) Testing

CESN Stonemark on Avocado Conversion Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC) Testing

CESN Stonemark on Golden Hill Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC) Testing

CESN Villa Grigio Conversion Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC) Testing

Chalice Unitarian Universalist Congregation Acoustical Site Assessment

Champagne Lakes RV Park Acoustical & Air Quality Conformity Assessments

Champions Center Architectural Acoustical Assessment

Champions Center Sound Transmission Classification (STC/OITC) Assessment

Chapala & Paseo Del Sol Forensic Site Assessment

Chelsea Verbena CCR Title 24 Acoustical Assessment

Chesapeake Bay Residential Architectural Acoustical Assessment

Children's Lighthouse Acoustical & Air Quality/GHG Conformity Assessments

Children's Village Environmental Assessments

Chino Hills Acoustical & Air Quality Conformity Assessment

Chuck Bryant Environmental Variance Assessment

Chuev's Acoustical Abatement Architectural Acoustical Assessment

City Heights Service Plaza Acoustical and Air Quality Conformity Assessments

City of San Marcos General Plan CO Hotspot Analysis

Clairemont High School Expansion Acoustical Assessment

Clarion Hotel Architectural Acoustical Study / Acoustical Assessment / Lighting and Glare Assessment

Clay Residence Acoustical Survey

Cleveland Street Residential Condominium Development Acoustical Site Assessment

ClubLife Senior Living Center Acoustical Assessment

Coleman College Redevelopment Acoustical & Air Quality Conformity Assessments

Community Road Development Acoustical & Air Quality Conformity Assessments

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Copley Drive Home Depot Electrical Survey

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Corona Tentative Map 37024 Acoustical & Air Quality/GHG Conformity Assessments

Coronado Park 3 Residences Architectural & Site Compliance Acoustical Assessments

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Country Glen Apartments Acoustical Assessment

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County of San Diego Operations Center Acoustical & Air Quality Conformity Assessments

Covert Canyon Acoustical Study

Covo Automotive Acoustical Assessment

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Dai Dang Meditation Facility Acoustical Assessment

Dalton Mixed Use Building Acoustical Assessment

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De Anza II Apartments Acoustical Assessment / NNIC Testing

De La Plaza Compliance Survey

Dehesa Road Residential Lot Split Acoustical Assessment

Del Cerro Chevron Acoustical Assessment

Del Dios Estates Acoustical Assessment

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Desert Springs Oasis Acoustical & Air Quality/GHG Conformity Assessments

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El Cajon District Center Acoustical Assessment

El Centro Affordable Housing Development Acoustical Site Assessment

El Centro Mall Acoustical & Air Quality Conformity Assessment Reports

El Centro Northgate Plaza Acoustical & Air Quality Conformity Assessments

El Centro Town Center CO Hotspot Analysis

El Centro Waste Water Treatment Plant Air Quality Conformity Assessment & Compliance Monitoring

El Corazon Recycling Greenwaste Odor Monitoring & Testing

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Fanita Parkway Focused Acoustical Alignment Study

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Fourth & C Commercial Plaza Acoustical Assessment

Fruella Property Acoustical Site Assessment

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Fund For Animals Generator Compliance Study

Galena Reno Nevada OPC Facility Acoustical Assessment

Gamboni Ranch Acoustical Assessment

Garden View Environmental Compliance

Genesee Executive Plaza Expansion Project Greenhouse Gas (GHG) Analysis

Glendale City Lights Acoustical Assessment

Glenrose Ranch Air Quality Conformity Assessment

Goddard School Acoustical Assessment

Golden Door Acoustical & Air Quality Conformity Assessments

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Hart 14 Unit HVAC Assessment

Hartford Village Acoustical Assessment

Hawthorn and India Street Acoustical Compliance Assessment

Hawthorn Place Architectural Acoustical Assessment

Henry's Market El Cajon Compliance Assessment

Henry's Market Escondido Acoustical Assessment

Heritage at Evening Creek Acoustical Assessment

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Hibiscus Tentative Parcel Map Acoustical Assessment

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Hotel Circle Bikeway Acoustical Assessment

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Imperial Center Air Quality Conformity Assessment

Imperial Solar Energy Center (South) Acoustical & Air Quality/GHG Conformity Assessments

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Interior Design Specialists Acoustical Compliance

Interstate Business Park Acoustical Assessment

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Iwannah Park Acoustical Assessment

JA Mesa Market SEP Acoustical Assessment

Jackson Drive Apartments Acoustical Site Assessment

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KPMG Architectural Acoustical Survey

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La Costa 3.2 Childcare Facility Acoustical Assessment

La Costa Multi-Family Architectural Acoustical Assessment

La Costa Multifamily Housing Architectural Acoustical Assessment

La Costa Oaks Architectural Acoustical Assessment

La Costa Town Square HVAC Noise Compliance Assessment

La Flor de Michoacan Acoustical Assessment

La Jolla Citizens Foundation Visual Assessment / Community Outreach

La Jolla Village Towers Mechanical Vibration Mitigation

La Mesa Meadows Acoustical Assessment

La Mesa Townhomes Acoustical Site Assessment

La Novia Ave Bridge Acoustical, Vibration & Air Quality Monitoring

La Novia Bridge Expansion Acoustical & Air Quality Conformity Assessments

La Vida Real Architectural Acoustical Assessment

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Lake Elsinore SPA 6 Air Quality Conformity Assessment

Lake Hodges Haul Truck Route Acoustical Assessment

Lake Jennings Condominiums Acoustical, Vibration & Air Quality Conformity Assessments

Lake Jennings Lot 1 Major Use Permit (MUP) Acoustical Assessment

Lake Jennings Market Place Acoustical, Vibration & Air Quality/GHG Conformity Assessments



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Las Vegas Home Depot #3305 Standby Generator Permitting Assessment

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Lincoln High School Acoustical & Air Quality Conformity Assessments

Linda Vista Child Center Expert Witness

Linda Vista Realignment Acoustical Assessment

Linda Vista Widening Acoustical & Air Quality Conformity Assessments

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Loranda Residential Development Acoustical Assessment

Los Angeles Metro Blueline & Goldline Passenger Rail Vibration Monitoring Project

Los Castillos Residential Architectural Acoustical Assessment

Los Coches Brightwater Ranch Acoustical & Air Quality/GHG Conformity Assessments

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Los Willows Onsite Acoustical Compliance Study

Lower Santa Ana River (LSAR) Sand Management MMRP Biological Noise Monitoring Project

Lowes Oceanside HVAC Noise Compliance Assessment

Lowes Vista Acoustical & Air Quality Conformity Assessment

Luckey Ranch BP Facility Air Quality Conformity Acoustical & Air Quality Conformity Assessments

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Magellan Gateway Acoustical & Vibration Assessments

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Marbella Country Club Acoustical Compliance Assessment

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Mary's House Acoustical Assessment

Maryland Drive Condominiums Architectural Acoustical Assessment

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McCabe Ranch Tentative Parcel Map Acoustical Assessment

McCullogh Ames Acoustical Assessment

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McMillin Liberty Station Expert Witness

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Meadow Lake Golf Course Acoustical Assessment

Meadow Run Acoustical Site Assessment

Meadowbrook Village Air Quality Conformity Assessment

Melrose Square Retail Center Acoustical & Air Quality Conformity Assessments

Melrose Station Loading Dock Acoustical Assessment

Melrose Vista 7-11 Site Permitting

Meridian at Eastlake Architectural Acoustical Assessment

Meridian Place Acoustical Assessment

Merriam Mountain Acoustical & Air Quality Conformity Assessment Expert Review

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Monte Vista Helicopter Acoustical Assessment

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Montessori Arts Architectural Acoustical Assessment

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Morgan Valley Tract 29473-2 Architectural Acoustical Assessment

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Morgan's Corner Architectural Acoustical Assessment

Morning Star Plantation El Centro Acoustical Assessment

Moronogo Entertainment Center Air Quality Conformity Assessment

Mosaic Property Acoustical & Air Quality/GHG Conformity Assessments

Mottino Center Acoustical Survey

Mt. Gate Acoustical & Air Quality Conformity Construction Assessments

Mt. Signal Solar Power Plant Acoustical & Air Quality Conformity Assessments

Murrieta High School #3 Acoustical & Air Quality Conformity Assessments

Murrieta Middle School #4 Acoustical & Air Quality Conformity Assessments

Murrieta Shopping Center Acoustical & Air Quality Conformity Assessments

MUT Development Acoustical Assessment

MWI Brawley Plumbing Expansion Acoustical & Air Quality/GHG Conformity Assessments

Myrtle Apartments Acoustical Assessment

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National City Downtown Specific Plan Acoustical & Air Quality/GHG Conformity Assessments



National University Architectural Acoustical Assessment

Nautical Bean Coffee Code Compliance

Naval Amphibious Base Housing Acoustical Assessment

Naval Surface Warfare Center Corona NAVAIR Vibration Survey

Naval Surface Warfare Center Seal Beach Surveillance & Testing Lab NAVAIR Vibration Survey

NCC Construction Vibration Assessment

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North County Transit District (NCTD) Sprinter Acoustical & Vibration Technical Assessments

North County Transit District (NCTD) Sprinter Rail Mitigation Assessment

North Melrose Auto Acoustical Assessment

North Pointe Tech Center Acoustical Assessment

North River Investments Acoustical Assessment

Northrop-Grumman Acoustical Assessment

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Northwest Village Creek Greenhouse Gas (GHG) Assessment

O'Brien Condo Acoustical Site Assessment

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Oceanside Circulation Element Update Acoustical & Air Quality/GHG Conformity Assessments

Oceanside Equestrian Property Acoustical Assessment

Oceanside High School Acoustical & Air Quality Conformity Assessments

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Oceanside VA Clinic Acoustical Analysis

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Old Castle Road Development Acoustical & Air Quality Conformity Assessments

Old Del Dios Residential Acoustical & Air Quality Conformity Assessments

Old Grove Apartments Acoustical Assessment / Architectural Acoustical Assessment

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Olivenhain Municipal Water District Lease Property Compliance Survey

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Olivenhain Municipal Water District Rancho Cielo Pump Station Odor Investigation

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Otay 50 Acoustical & Air Quality Conformity Assessments

Otay Lakes Car Wash Acoustical Site Assessment / Permitting Assistance

Otay Lakes Condominiums Acoustical Site Monitoring

Otay Land Company Village 8 Acoustical & Air Quality/GHG Conformity Assessments

Otay Landfill CDI Facility Acoustical & Air Quality Conformity Assessments

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Otay Mesa Pump Station Architectural Acoustical Assessment / IS

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Pacifica Office Suites Sound Transmission Classification (STC/OITC)



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Peaceful Valley Fire Station Acoustical Site Assessment

Peaceful Valley Ranch Acoustical & Air Quality Conformity Assessments

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Pennsylvania Childcare Center Acoustical Assessment

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Perlman Architectural Acoustical Assessment

Perris-Rider Center Acoustical Study

PETCO Corporate Building San Diego Interior Acoustical Assessment

Peter Rios Estates Apartments Acoustical Assessment

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Pier View Site Assessment / Due Diligence Study

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Renaissance Terrace Tentative Map Acoustical Site Assessment

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Riva Gardens Residential Acoustical Assessment



River Ranch North Architectural Acoustical Assessment

River Ranch South Architectural Acoustical Assessment

River Run East & West Acoustical & Air Quality Conformity Assessments

Riveria Del Sol Acoustical Assessment & Architectural Acoustical Assessment

Riveria Del Sol MMRP Compliance

Riverside Motocross Track Code Enforcement Monitoring & Reporting

Riviera Drive Condominiums Impact Isolation Classification (IIC) Testing

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RMWD Photovoltaic Upgrade Construction Air Quality Conformity Assessment

Robertson Ranch EIR Carlsbad Acoustical & Air Quality Conformity Assessments

Robertson's Concrete Escondido Operational Compliance Assessment

Robertson's Concrete Facility Escondido Acoustical & Air Quality Conformity Assessments

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Robertson's Ready Mix Ramona Acoustical Site Assessment

Robinson Electric Acoustical Assessment

Rock Springs Residential Acoustical Assessment

Rose Bay Townhouses Architectural Acoustical Assessment

Roslyn Lane HOA Expert Witness

Roslyn LLC Expert Witness

Ryan Continuation School Acoustical & Air Quality Conformity Assessments

Sabre Springs Architectural Acoustical Assessment

Sage Canyon San Elijo Hills Area F1 Architectural Acoustical & Site Permitting Assessments

Salas Residential Property Acoustical Assessment

San Diego Ball Field (PETCO Park) Acoustical Assessment

San Diego City Crown Point Emergency Sewer Replacement Acoustical Mitigation Monitoring

San Diego CNG Refueling Facility Acoustical & Air Quality Conformity Assessment Constraint Studies

San Diego County Environmental Services & Educational Center Acoustical Assessment

San Diego County Water Authority (SDCWA) Lake Hodges Tunnel Blasting Vibration Assessment

San Diego County Water Authority MMRP Compliance

San Diego Drums Acoustical Compliance Assessment

San Diego Gas & Electric (SDG&E) Los Coches Substation Construction Acoustical Monitoring

San Diego Gas & Electric (SDG&E) Moreno Valley Compressor Station Acoustical & Vibration Testing

San Diego Gas & Electric (SDG&E) Sunrise O&M Helicopter Model Generation

San Diego Gas & Electric (SDG&E) Sunrise Powerlink Acoustical & Vibration Engineering / MMRP Compliance

San Diego Greenwaste Air Quality Conformity Monitoring

San Diego High School Acoustical & Air Quality Conformity Assessments



San Diego Home Depot Rental Facility Noise Compliance

San Diego Imperial Valley Campus Project Environmental Assessment

San Diego Main & Mace Acoustical Study

San Diego Master Plan Acoustical & Air Quality Conformity Assessment

San Diego Yacht Club Acoustical Site Assessment

San Dieguito Wetland Restoration MMRP Compliance Monitoring

San Elijo Hills Albertsons Acoustical Assessment

San Elijo Hills Area C-1 Acoustical & Air Quality Conformity Assessments

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San Elijo Hills Area G-1 Acoustical & Air Quality Conformity Assessments

San Elijo Hills Area H-3 Acoustical Assessment

San Elijo Hills Area H3 Sound Transmission Classification (STC/OITC) Test

San Elijo Hills Area V2 Acoustical Assessment

San Elijo Hills Areas E-1 E-2 I-1 & I-2 Residential Acoustical Assessments

San Elijo Hills Towncenter Acoustical Assessment

San Juan Capistrano Desalination Plant Acoustical Site Assessment

San Manuel Casino Expansion Acoustical & Air Quality Conformity Assessments

San Manuel Parking Lot Air Quality Conformity Assessment

San Miguel Ranch Acoustical Site Assessment

San Miguel Ranch Planning Area B Site Assessment, Architectural Acoustical, Sound Transmission

Classification (STC/OITC) Assessments

San Pasqual Recycled Water Pipeline Acoustical

San Pasqual Soil Source Assessments

San Ysidro Land Port of Entry Historic Structure Construction Vibration Monitoring Program

Sanderling School Acoustical Assessment

Sanderson & Acacia Commercial Center Environmental Assessments & Permitting

Santa Fe Station Acoustical & Air Quality/GHG Conformity Assessments

Santa Luz Unit 14 Architectural Acoustical & Site Compliance Assessments

Sapper Tentative Parcel Map Acoustical Study

Sav-On Drugs Chula Vista Acoustical Assessment

Sawyers Mill Acoustical Assessment & Architectural Acoustical Assessment

Scotsman Biological Acoustical Monitoring MMRP

Scripps Pomerado Hospital Acoustical Assessment

Scripps Ranch Middle School Acoustical & Air Quality Conformity Assessments

SDCWA Beeler Shaft Acoustical, Ground Vibration & Air Quality Conformity Assessments

Sea Breeze Carmel View Property Acoustical Assessment

Seacoast Drive Ground Vibration Monitoring



Self-Realization Fellowship Church Encinitas Acoustical Monitoring & Consultation

Self-Realization Fellowship Church Valley Center Code Enforcement Monitoring

Semo Residential Project Encinitas Acoustical Assessment

Serra High School Data Center Building Acoustical Assessment

Settlers Point (Los Coches II) Acoustical & Air Quality Conformity Assessments

Seven Oaks Residential Acoustical Assessment

SEVILLA Property Acoustical & Air Quality Conformity Assessment

Shadow Run Ranch Acoustical & Air Quality Conformity Assessments

Shirley Lane Tentative Map Lemon Grove Acoustical Site Assessment

Shorees Property Tentative Parcel Map 21054 Acoustical & Air Quality/GHG Conformity Assessments

Shoreline Resort Acoustical Assessment

Sierra Bella Acoustical Assessment

Sierra Madre Academy Acoustical & Air Quality Conformity Assessments

Sierra Ridge Architectural Acoustical Assessment

Sigsbee Row Acoustical Assessment

Silver Sage Expert Consultation

Silvergate San Marcos Architectural Acoustical Assessment

Silverleaf Center Acoustical Assessment

Silverleaf Estates Acoustical & Air Quality/GHG Conformity Assessments

Simon Residence in La Jolla Biological Noise Monitoring

Simpsons Farms Acoustical & Air Quality Conformity Assessments

Singing Hills Acoustical & Air Quality Conformity Assessments

Skandia Architectural Acoustical Assessment

Sky Ranch Airport Acoustical Site Study / Air Quality Conformity Assessment

Skyline Ranch CC Operational Acoustical Assessment

Skyline Terrace Acoustical Assessment

Skyline Truck Trail Tentative Parcel Map 21107 Acoustical & Air Quality/GHG Conformity Assessments

Skystream Wind Turbine Acoustical Study

Snider Generator Acoustical Compliance Study

Solutions for Change Architectural Acoustical Assessment

Sonoma at Eastlake Architectural Acoustical Assessment

Sorrento Valley Pump Station Acoustical & Vibration Monitoring

South Bay Baptist Church Acoustical Site Assessment / Permitting

South Beach Restaurant Acoustical Assessment

South Melrose Office Plaza Acoustical & Air Quality Conformity Assessments

South Mill Creek CCR Title 24 Study

Southerly Project (Lake Elsinore)



Southern Hills Environmental Assessments

Spencer's Crossing Villages 1 through 4, Acoustical & Air Quality Conformity Assessments

Spherion Legal Acoustical Assessment

Springbrook Residential Development Acoustical & Air Quality Conformity Assessments

Springhill Suites Acoustical Site Assessment

Sprint Cell Sites (various) Acoustical & EMF Compliance Assessments

SR-98 Improvement Caltrans Acoustical & Air Quality Conformity Assessments

SR-163 Interchange Caltrans Acoustical & Air Quality Conformity Assessments

SRWB Property Acoustical Assessment (Carlsbad)

St John Recycling Center Acoustical & Air Quality/GHG Conformity Assessments

St. Adelaide Church Acoustical & Air Quality Conformity Assessments

St. Gregory Church Acoustical Assessment

Standish Precision Tool Relocation Survey

STARCO Foodmart Acoustical Assessment

Steele Canyon Phase V Air Quality Conformity Assessment

Stephens Property Vista Acoustical & Air Quality Conformity Assessments

Stewart Pipeline Engineering Analysis

Stonebridge Exterior Interior Acoustical Assessment

Stoneridge Ranch Commercial Air Quality Conformity Assessment

Straw House Acoustical Assessment

Stuart Subdivision Kern County Acoustical & Air Quality Conformity Assessments

Suds Sports Grill Sound Transmission Classification (STC/OITC) Compliance

Sully Miller Vibratory Roller Forensic Assessment

Summit At Carlsbad Acoustical Site Assessment / Architectural Acoustical Assessment

Summit at Eastlake Acoustical & Air Quality/GHG Conformity Assessments

Sunrise Assisted Living Tentative Parcel Map Acoustical Site Assessment

Sunrise Bonita Architectural Acoustical Assessment

Sunrise Pacific Beach Architectural Acoustical Assessment

Sunrise Powerlink O&M Helicopter Analytical Model Generation

Sweetwater Condo Conversion Assessments

Sycamore Estates Vista Environmental Impact Report (EIR)

Sycamore Highlands Acoustical & Architectural Acoustical Assessment

Sycamore Unit 3 Acoustical Assessment

Synergy Dance Studio Acoustical Compliance Study

Tabata Tentative Parcel Map Carlsbad Acoustical & Air Quality Conformity Assessments

Takahasi Tentative Parcel Map Acoustical Assessment

Tanner Residence Architectural Acoustical Assessment



Taylor Homes Architectural Acoustical Assessments

Temecula WalMart Loading Dock Assessment

Tentative Map 429 Higgins Estates Acoustical Assessment

Tentative Map 432 Rock Crusher Assessment

Tentative Map 5103 Residential Acoustical Assessment

Tentative Map 5134 RPL (Welk Garden Villas) Air Quality Conformity Assessment

Tentative Map 5134 RPL Welk Garden Villas Architectural Acoustical Assessment

Tentative Map 5164 Development Acoustical Assessment

Tentative Map 5165 Architectural Acoustical Assessment

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Tentative Map 5308 Acoustical & Air Quality Conformity Assessment

Tentative Map 5318 Pine Valley Park Acoustical & Air Quality Conformity Assessments

Tentative Map 5332 Crest View Construction Acoustical Assessment

Tentative Map 5358 Acoustical & Air Quality Conformity Assessments

Tentative Map 5369 Acoustical & Air Quality Conformity Assessments

Tentative Map 5378 Residential Acoustical Assessment

Tentative Map 5387 Las Casitas Acoustical & Air Quality Conformity Assessments

Tentative Map 5390 The Groves Acoustical & Air Quality Conformity Assessments

Tentative Map 5431 Victoria Estates Acoustical & Air Quality Conformity Assessments

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Tentative Parcel Map 20703 Acoustical Assessment

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Tentative Parcel Map 21030 Acoustical Assessment

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Tentative Parcel Map 21056 Acoustical Assessment

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Tentative Parcel Map 21083 CCR Title 24 Acoustical Assessment

Tentative Parcel Map 34760 Acoustical & Air Quality/GHG Conformity Assessments

TERI Project Acoustical & Air Quality Conformity Assessments

The Boulevard Gas Station Acoustical Site Assessment

The Casitas at Spring Creek Architectural Acoustical Assessment

The Club at Spencer's Crossing Acoustical Permitting Study

The Cottages Acoustical & Air Quality Conformity Assessments

The Goldwyn Condominiums South El Monte Acoustical Site Assessments / Permitting Assistance

The Stonemark Bakersfield Impact Isolation Classification (IIC) / Sound Transmission Classification (STC/OITC)

Tokar Tentative Parcel Map Acoustical Site Assessment

Torrey Pines Replacement Water Pipeline Acoustical & Ground Vibration Assessment

Tower on Fifth Acoustical Assessment

Toy Factory Acoustical & Vibration Site Assessments

Tract 861 Residential Acoustical Assessment

Tract 16756 Acoustical & Air Quality Conformity Assessments

Tract 30694 (Spencer's Crossing) Acoustical & Air Quality Conformity Assessment

Tract 30695 (Spencer's Crossing) Acoustical & Air Quality Conformity Assessment

Tract 30696 (Spencer's Crossing) Acoustical & Air Quality Conformity Assessment



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Tract 32290 (Spencer's Crossing) Acoustical & Air Quality Conformity Assessments

Tract 34333 Acoustical & Air Quality Conformity Assessments

Tran Sweetwater Road Duplex Acoustical Assessment

Travertine Estates Acoustical & Air Quality/GHG Conformity Assessments

Tres Cerritos Air Quality Conformity Assessment

Treviso Residential Sound Transmission Classification (STC/OITC) / Impact Isolation Classification (IIC)

Triana at Warner Center Acoustical Assessment

Tule Wind Project Acoustical & Air Quality/GHG Conformity Assessments

Turning Point Acoustical Assessment

UDR Presidio Acoustical Assessment

Union Pacific Imperial Valley Rail Noise & Vibration Analysis

University District San Marcos Acoustical & Air Quality Conformity Assessments

University of Phoenix CCR Title 24 Assessment

Valencia Business Park Acoustical & Air Quality Conformity Assessments

Valley Center Community Church Acoustical & Air Quality Conformity Assessment

Valley Center Elementary School Site Assessment / Due Diligence Study

Vanguard Center Acoustical Site Assessment

Vassar Villas Los Angeles Acoustical Assessment

VBP Building #2 Acoustical Assessment

Ventana Residential Development Project Acoustical & Air Quality Conformity Assessments

Venture High School Conditional Use Permit Acoustical Assessment

Via Centre Office Park Acoustical Permitting Study

Via Roble Apartments Architectural Acoustical & Site Assessments

Victoria Estates Tentative Map 5431 Acoustical Site Assessment

Victoria Village CCR Title 24 Architectural Acoustical Assessment

Viejas Casino Acoustical & Air Quality Conformity Assessments

Viejas Hotel Expansion Project Acoustical & Air Quality Conformity Assessments

Village Courtyard Shopping Center Air Quality Conformity Assessment Expert Consultation

Village Knoll Shopkeeper Acoustical Assessment

Village Walk Acoustical Assessment

Villages of La Costa Areas 1.3, 1.07, 1.08 through 1.14, 1.17, 2.1, 2.6, 3.1, 3.5 through 3.7, 3.9, 3.10

through 3.15, Acoustical Site & Architectural Acoustical Assessments

Villages of La Costa Biological MMRP Noise Monitoring Program

Villages of La Costa Construction Compliance Assessment

Villages of La Costa Greens Area 1.06 Acoustical & Air Quality Conformity Assessments



Villages of La Costa Greens Area 1.07 Acoustical Assessment

Villages of La Costa Greens Area 1.17 Acoustical Assessment

Villages of La Costa Recreation Center Acoustical Assessment

Villages of La Costa Rock Crusher Environmental Compliance Assessment

Villagio Architectural Acoustical Assessment / Impact Isolation Classification (IIC) Testing

Villas at Mission Point Acoustical & Architectural Acoustical Assessments

Vintage Point Phase II Architectural Acoustical Assessment

Vintage Pointe Phase II (Oceanside) Acoustical & Air Quality Conformity Assessments

Vista 7-11 Store #6049 Acoustical Assessment

Vista CIP 8046 Acoustical Review

Vista Community Park Acoustical & Air Quality Conformity Assessments

Vista Del Lago Acoustical Assessment

Vista Dog Park Acoustical Assessment

Vista Focus Academy Acoustical & Air Quality Conformity Assessment

Vista General Plan Acoustical & Air Quality Conformity Assessments

Vista Grande Acoustical & Air Quality Conformity Assessment

Vista Grande Reservoir Acoustical Site Assessment

Vista Hacienda Condominiums Architectural Acoustical Assessment

Vista Hacienda Gateway Acoustical & Air Quality Conformity Assessments

Vista Las Flores Architectural Acoustical Assessment

Vista Las Flores Environmental Permitting

Vista Melrose Business Center Acoustical & Air Quality Conformity Assessments

Vista Sports Park Blasting Noise & Vibration Monitoring

Vista Village Plaza Acoustical & Air Quality Conformity Assessments

Vitro-Rockwell Residential Biological Noise Monitoring

Wake Avenue Subdivision Assessment

Wakeland Housing Santee Apartments Architectural & Site Compliance Acoustical Assessment

Walker Residence Vibration Testing

Warmington Ensley Cottages Ontario Acoustical Site & CCR Title 24 Assessments

Warmington Greenway Place Whittier Acoustical Site & CCR Title 24 Assessments

Warmington Ladera Ranch OC Acoustical Site & CCR Title 24 Assessments

Warmington Melrose Vista 47 Photometric Assessment2016 Projects

Warmington Melrose Vista 50 Acoustical Site & CCR Title 24 Assessments

Warmington Victory 63 Acoustical Site, Photometric & CCR Title 24 Assessments

Warmington Wallis 5 (Trestle) Photometric Assessment

Warmington Wallis 7 Photometric Assessment

Warner Center Apartments Acoustical Assessment



Research and Development at ISE

Scientific Research and Development at ISE

For over 20 years, ISE has very successfully employed a commercialization process of reinvestment of earned revenues toward new research and development of innovative, or more advanced, methodologies, systems, and analytical tools. These have been, in turn, incorporated into our professional services and customized solutions offered to clients.

ISE's research and development has been termed by some as, "solutions looking for a problem". We are constantly tinkering and exploring research topics, which are not only advantageous to our clients, but also of innate interest to us.

As a matter of company culture, we encourage our staff to explore science and engineering topics in their own areas of interest. Since our staff have interests in a wide variety of subject matter, including wave propagation, mass spectroscopy, gas dynamics, structural and environmental acoustics, air pollution transport, structural dynamics and control systems, and electromagnetic propagation, control-feedback systems, cryogenic instrumentation, low and high temperature superconductor sensor controllers, data acquisition, fiber-optics, and design of EMI protection for electronics - we're never running out of topics to explore.

Past ISE Research and Development Projects

ISE and its principal researchers have been involved in collaborative partnerships between industry, and academic R&D projects. Our teaming partners have included the following entities.

University of California Irvine

Nevada Test Site

Pacific Gas and Electric Company

University of California San Diego

Department of Energy

NASA Ames Research Center

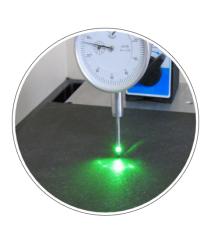
Los Alamos National Labs

United States Coast Guard

Pacific Earthquake Engineering Research Center

Some of our past research and development projects have included:

- Design and Implementation of EMI/EMF Protection for Electronic Systems.
- Design and Implementation of Noise-Alert System for Mass Grading Construction Operations.
- Design and Layout of Cryogenic Temperature Controllers for Laboratory, Cryo-cooler, and Semiconductor Fabrication Applications.
- Design and Layout of Superconducting Non-Destructive





Research and Development at ISE

Evaluation (NDE) System Products.

- Design and Layout of Thermocouple Instrumentation for Cryogenic Laboratory Applications.
- Determination of Dynamic Failure Characteristics of U.S. Coast Guard "Star-Rotor" Assembly.
- Determination of Modal Characteristics of Damped and Undamped Composite Missile Interceptor Structures.
- Determination of Seismic Failure Modes of High Voltage Transformer Ceramic Bushings. Determination of Seismic Transmissibility of 500KV Transformer-Bushing Pairs.
- Electronic and Software Development / System Integration for specialized custom data acquisition systems, and precision instrumentation.
- Experimental Determination of Damage in a Lightly Damped Elastic Space Truss.
- Improved Civil Structural Damage Detection Method.

 Underground Seismic Response of Large Nuclear Explosives using Rayleigh Wave Propagation.

