Victor Zayas, PhD, Earthquake Engineer

Hall of Fame Member, American Society of Civil Engineers

Lifetime Achievement Award Winner
Structural Engineers Association of California

Academy of Distinguished Alumni,
University of California, Berkeley

Senior Research Fellow, University of California, Berkeley

Doctorate in Structural Earthquake Engineering,
University of California, Berkeley

President and Founder, Earthquake Protection Systems

Inventor of Pendulum Seismic Isolators

California Professional Engineer C35723

Dr. Zayas' fundamental concept for ductile structures, as developed while doing his PhD thesis work at the University of California Berkeley during the 1970s, was to increase a structure's lateral displacement capacity by developing structure member details and types that would distribute seismic displacements throughout the entire structure height, avoiding concentrations of displacements in any one portion of a structure, which typically is the primary cause of structure collapse. This "ductile structure" approach achieves structures that reliably avoid collapse during very strong earthquakes. Victor's thesis contributed to the development of the modern seismic codes that avoid collapse for buildings, bridges, and industrial facilities, saving lives worldwide. His thesis work was elected to an ASCE Hall of Fame for "Pioneering Innovation and Lasting Impact".

Not satisfied with the severe damage that occurs in ductile structures, Victor started to investigate alternate structural systems that could actually maintain post-earthquake functionality, not just avoid collapse. In 1979 he started developments on pendulum seismic isolators, displacement based seismic design, isolated structure construction methods, earthquake shaking damage estimations, isolator materials that would deliver reliably consistent properties when subject to adverse environmental conditions for 50 years, and standards for seismic isolators as manufactured products. Combined, these developments have delivered economical structures that function after earthquakes. Damage is avoided, and safety is assured, by reliably absorbing the seismic displacements in sliding pendulum isolators; thus minimizing the accelerations, forces, and lateral displacements occurring in the other structural members. The pendulum isolators actively control a structure's period, damping, and displacement capacity, instead of passively accepting the periods, yielding, unknown safe inelastic displacement capacity, and the high accelerations and forces, and the severe damage that occurs in ductile structures. In structures compliant with the Seismic Isolation Standard for Continued Functionality (SISCF), the structural members remain reliably elastic, and special ductile detailing is not required. Thus, damage is avoided and construction costs are reduced as compared to constructing special ductile structure types.

The Structural Engineers Association of California awarded Victor their "Lifetime Achievement Award" stating: "Victor Zayas has changed the practice of structural engineering for the better".

Structure Engineer Magazine cover story cites "Victor Zayas: Steady Innovation" "Zayas embodies the entrepreneurial spirit while also helping to invent and shape how engineering can continue to improve."

Dr. Zayas is an inaugural member of the Academy of Distinguished Alumni, and a Senior Research Fellow, of the University of California Berkeley, Civil Engineering Department. Victor is also founder and president of Earthquake Protection Systems, California, "EPS".

The EPS pendulum isolators that Victor invented have been installed in over $200 Billion in constructed value of important buildings, bridges, and industrial facilities. Dr. Zayas is the world's leading advocate and engineer using seismic isolation to minimize damage sufficiently to maintain facility functionality. This differs from standard practice in structural engineering, which has been to use the much smaller isolators allowed by the structure design standards. Generic building code structure types reduce the risks of collapse by allowing substantial damage. Isolators were invented to minimize damage. Email: Victor@EarthquakeProtection.com