

# CURRICULUM VITAE

## JOHN A. GOVEIA

**2339 Stanwell Circle, Suite A**  
**Concord, CA 94520-4875**  
**(925) 356-7773 • (925) 356-7776 fax**  
**e-mail: [jgoveia@DNG-Group.com](mailto:jgoveia@DNG-Group.com)**  
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### EMPLOYMENT EXPERIENCE

1985 - Present

*Pacific Building Consultants, Inc. (PBC) President, Principal and Senior, Consultant*

*Technical Roof Services, Inc. (TRS), Concord, California - Vice President, Principal and Senior, Consultant*

Original founding associate of TRS since 1985 and PBC & DNG Group in 2005 involved in development of objectives and principles of the Company's. Sales, management, coordination, scheduling, project team leader. Providing assistance to clients on over 1915 project assignments since 1985. Development of Firms technical documents; expert witness assistance in dispute resolution; specification and drawing assistance; overall technical advisement, occasional inspection of existing conditions; education assistance.

1975 - Present

**Various Consulting Projects in the following locations:** Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Kwajalein Atoll – Marshall Islands, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, Washington and Wyoming.

1975 - 1980 & 1981 – 1985 *Roofing Sales, Leak Investigations, Educator, Safety Instructor, Trade Foreman, Roofer, Apprentice, Helper: Fidelity Roof Company, Oakland, California*

Responsible for leak analysis, related sales and specification development project work requiring ropes as well as safety instruction. Apprentice trainer, roofing, leak repairs, and investigations. Foreman, on-the-job training of apprentices. Instituted mountain climbing and rappel equipment use for roofing and training of selected personnel for safe usage. Development of a leak analysis type concept.

1981 *Roofing, Roofing Sales, Technical Assistance*

*ARC Roofing, Oakland, California*

Responsible for leak analysis and related sales, roof installations, roofing repairs, supervision of projects.

1980 *Roof & Sheet Metal Technical Supervisor, Installer & Sales*

*Advanced Roofing, Issaquah, Washington*

Associate in operation, responsible for developing company in areas of built-up roofing, elastomeric waterproofing, quality control, sheet metal fabrication and installation, metal roofing, repairs, safety and roof condition analysis.

### PROFESSIONAL AFFILIATIONS

RCI, INC. The Institute of Roofing, Waterproofing and Building Envelope Professionals (RCI, Inc.)  
*Formerly Roof Consultants Institute*

RICOWI Roofing Industry Committee on Weather Issues – Wind Event Investigation Team Member (WIT) and Hail Investigation Program Team Member (HIP)

NRCA National Roofing Contractors Association

### SPECIAL PROJECTS

1984 - Present

**DISPUTE RESOLUTION & LITIGATION** Consulting and investigation into causes and extent of alleged roof, waterproofing, sheet metal, wall and moisture intrusion damages, two product Class Actions and injury cases - on over 582 projects since 1984 and approximately 26% of projects have been on behalf of plaintiff, 73% on defense and <1% serving as neutral intermediary expert for the Court to the special master. Testified as expert in trial 4 times – Contra Costa County Superior Court, San Francisco Superior Court, Marin County Superior Court and Placer County Superior Court, ~ 90 times in deposition and participated in Mediation and Arbitration 49 times. Dispute Resolution projects have been in California, Texas, Nevada, Oregon and Hawaii, with all testimony in California.

2005 - 2011

**California Title 24 Part 6 Energy Codes:** Active involvement in reviewing technical data, cool roof costs for low slope and steep sloped roofs, both 2005 including CEC ad hoc training for roofing group & 2008 Code change presentations, participation in workshops, and proposed 2011 triennial code changes,.

## SPECIAL PROJECTS (continued)

1992 - 2011	<p><b>EXTREME WEATHER</b></p> <p><b>2011 Hail DALLAS:</b> RICOWI – Team member working on reporting, forms and assessment for damaged locations - HIP (Hail Investigation Program) damage assessment Team 01, Photographer, <b>June 2011 Dallas, TX</b></p> <p><b>2008 Hurricane IKE:</b> RICOWI/RCI – Advance team member working on reporting, forms and flyover assessment for damaged locations prior to teams arrival - Hurricane damage assessment team 2, Department of Energy - <b>September 2008 Houston, TX</b></p> <p><b>2007 &amp; 2010 Hurricane KATRINA follow-up:</b> RICOWI – Trip back into Mississippi to look at progress of Team 2 Katrina sites - <b>Pass Christian/Gulfport, MS</b></p> <p><b>2005/2006 Hurricane KATRINA &amp; IVAN follow-up:</b> RICOWI/RCI – Advance team member working on reporting, forms and assessment for damaged locations prior to teams arrival - Hurricane damage assessment team 2, Department of Energy - <b>September 2005 Pensacola, FL – Mobile, AL and Pass Christian/Gulfport, MS</b></p> <p><b>2004 Hurricane IVAN:</b> RICOWI/TRS - Hurricane damage assessment team 2, Department of Energy - <b>September 2004 Pensacola, FL.</b></p> <p><b>1994 Hurricane – T/S GORDON:</b> In the storm while in Florida, technical assistance on a variety of projects in Florida</p> <p><b>1992 Hurricane ANDREW:</b> Technical assistance on a variety of projects in Florida</p> <p><b>1992 Hurricane INIKI:</b> Technical assistance on a variety of projects September <b>1992</b> in Kauai, Hawai'i</p>
2002 – Present	<p><b>SOLAR &amp; PHOTOVOLTAIC:</b> Various projects ranging from early solar exhaust fans to PV consulting regarding roof.</p> <p><b>City of Livermore</b> – 2004, Pilot PV project, Old City Hall.</p> <p><b>Mountain View</b> - Multi-building facility.</p> <p><b>Marin County</b> – Health services building facility.</p>
1975 - Present	<p><b>HISTORICAL BUILDING PROJECTS</b> – Roofing, waterproofing, moisture intrusion consulting and document assistance on a variety of State and/or Federal Historical projects, most registered Historic:</p> <ul style="list-style-type: none"><li>• Anna Head Complex, University of California, Berkeley, CA</li><li>• Bakery Lofts, Emeryville, CA</li><li>• California Hall, University of California, Berkeley, CA</li><li>• Coit Tower, San Francisco, CA</li><li>• Doe Library, University of California, Berkeley, CA</li><li>• Dunsmuir House, Oakland, CA</li><li>• Durant Hall, University of California, Berkeley, CA</li><li>• Fresno City College Administration Building, Fresno, CA</li><li>• Old Foot Locker, Art Deco Historic District, Los Angeles, CA</li><li>• Golden Gate Park Carousel, San Francisco, CA</li><li>• George Edwards Stadium, University of California, Berkeley, CA</li><li>• Graycliff Estate, Frank Lloyd Wright design, reroofing, Derby, NY</li><li>• Haviland Hall, University of California, Berkeley, CA</li><li>• Hearst Memorial Mining Building, University of California, Berkeley, CA</li><li>• Laguna Honda Hospital, South Clarendon Hall, San Francisco, CA</li><li>• Marin County Civic Center - Administration and Hall of Justice, San Rafael, CA</li><li>• Marin County Marin Center Veterans' Memorial Auditorium, San Rafael, CA</li><li>• Oakland City Hall, Oakland, CA</li><li>• Oakland Main Post Office, Oakland, CA</li><li>• Oakland Hotel, Oakland, CA</li><li>• Pacific-Union Club, San Francisco, CA</li><li>• Palace of Fine Arts, San Francisco, CA</li><li>• Palace of Legion of Honor, San Francisco, CA</li><li>• Pleasanton Hotel, Pleasanton, CA</li><li>• Petaluma Post Office, Petaluma, CA</li><li>• Saint Paul's Church, Oakland, CA</li><li>• SF Historic District including City Hall, Opera House, Veterans Memorial Building and Civic Auditorium, San Francisco, CA</li><li>• San Jose Civic Auditorium, San Jose, CA</li><li>• Santa Monica Gap Store, Santa Monica, CA</li><li>• School of the Sacred Heart - Flood Mansion, San Francisco, CA</li><li>• South Hall, University of California, Berkeley, CA</li></ul>
2009	<p><b>Marin Civic Center and Memorial Dome – County of Marin, Department of Public Works</b></p> <p>Consulting on this unique Frank Lloyd Wright designed Civic Center structure regarding possible reroofing.</p>
1998 - 2000	<p>Completed the reroof consulting commission on this unique Frank Lloyd Wright designed Civic Center structure. The special blue color roof coating was developed to match the 1967 color. TRS provide technical specifications, drawings, and assistance during construction for the 1999 &amp; 2000/2001 reroof project and the 2003 Skylight project.</p>
2000 - 2003	<p><b>Marin Veterans' Memorial Auditorium – County of Marin, Department of Public Works</b> Civic Center Veterans' Memorial Auditorium dome reroof.</p>

## **SPECIAL PROJECTS (continued)**

- 2003      **Oak Ridge National Laboratory – Oak Ridge, TN:** Participated with small, select group of individuals installing various type tile roof coverings, installed in different methods as part of a 3-year thermal and ventilation study.
- 1994 - 2003      **City of Livermore**  
Technical assistance including specification development, detail drawings, regarding roof installation on many of the City buildings including the first City Pilot Solar Photovoltaic Project at City Hall.
- 1988 - 1990  
1997 - 1998      **San Francisco Laguna Honda Hospital, San Francisco, CA**  
Commissioned initially in 1988 to review exterior envelope and severe leakage. Survey included over 100 roof areas, flashings, decks and coatings, exterior wall coatings and cracks, windows, doors and sheet metal flashings. Re-commissioned on project in 1989/1990 after Loma Prieta earthquake – located damage to roof and deck systems unnoticed by engineers. Re-commissioned again in 1996 to provide reroof technical documents and continue through construction phase.
- 1983 - 1993  
1996/1998      **San Francisco City Hall and Civic Auditorium – San Francisco Bureau of Architecture**  
Commissioned initially in 1983 to review exterior envelope and severe leakage. Survey included over 50+ roof areas – metal and low slope, flashings, decks and coatings, exterior wall coatings and cracks, windows, doors and sheet metal flashings. Re-commissioned on project in 1989/1990 after Loma Prieta earthquake – located damage to roof and deck systems. Responsible for leak analysis, specification assistance and detail drawings, material research and project management, worked on dome, steeple, and five reroof and repair projects. Project won local and National awards.
- 1996      **City & County of San Francisco Jail Facility, San Bruno, CA**  
Commissioned to review exterior envelope and severe leakage. Survey included roofs, flashings, exterior wall coatings and cracks, windows, doors and sheet metal flashings.
- 1986 - 1987  
1998 - 1999      **San Francisco Opera House and War Memorial – San Francisco Bureau of Architecture**  
Commissioned initially in 1986 to review exterior envelope and severe leakage. Survey included over 50+ roof areas – metal and low slope, flashings, decks and coatings, exterior wall coatings and cracks, windows, doors and sheet metal flashings. Re-commissioned on project and re-commissioned again in 1998 to provide reroof technical assistance and continue through construction phase. Responsible for leak analysis, specification assistance and detail drawings, material research and project management, worked on dome, steeple, and five reroof and repair projects. Building has had various local awards.
- 1992 -  
2001      **University of California, Berkeley Campus**  
Condition evaluations, leakage investigations, specifications and drawings, repair recommendations regarding roof and waterproofing considerations. Some projects include Alumni House, Anna Head Complex, University Art Museum, Clark Kerr Center, Doe Library, Hearst Memorial Mining, Lawrence Hall of Science - multiple projects, and several Halls including: Birge, California, Campbell, Durant, Evans, Foothill, Haviland, Hilgard, Latimer, Valley Life Sciences, Minor, Residence II, South, Stanley, Stern, University, Warren, Wurster and Zellerbach.
- 1994      **Northridge Earthquake Damage**  
Emergency response team assistance to client on 24 projects in Southern California including immediate Project Repair Documents.
- 1989      **Loma Prieta Earthquake Damage**  
Assistance to clients and also FEMA on hospital buildings, some City & County of San Francisco buildings, and participated on other Bay Area buildings.
- 1988      **Morrison Knudsen/Army Corps of Engineers, Kwajalein Atoll, Marshall Islands**  
Consulting assistance regarding built-up roof conditions and installation in near-equator environment northeast of Australia.
- 1985      **School of Sacred Heart (Flood Mansion), San Francisco, CA**  
Responsible for safety, roof investigation, as well as budget preparation and alternative reviews for a restoration project.
- 1985 - 1987  
& 2004      **Palace of Legion of Honor & Palace of Fine Arts, San Francisco, CA**  
Metal dome roofing system salvage on the Legion of Honor and Fluid Coating system on Fine Arts. Some leak investigation and research, and specification assistance for the San Francisco Bureau of Architecture on this Historical Registered Building.

## **SPECIAL PROJECTS (continued)**

- 1985 - 1993 **San Francisco Academy of Sciences, Golden Gate Park, San Francisco, CA**  
Responsible for leak investigation and analysis. Material research, specification assistance and detail drawings for San Francisco Bureau of Architecture. Presentations given to the City of San Francisco.
- 1985 - 1988 **Coit Memorial Tower, San Francisco, CA**  
First person to diagnose cause of moisture intrusion damaging Fresco's on this Historical Registered Building. Responsible for leak analysis and technical assistance in the main restoration project. Project won local and National awards.
- 1980's **Bimini Boatyard Restaurant & Howard Johnson's Hotel: Fort Lauderdale, FL**  
Restaurant - Unique custom South American wood shake system with leakage. Hotel: Leak investigations.
- 1986 - 1999 **MERVYN'S STORES**
- 2005 - 2009 Technical assistance at a variety of levels on over 290 new and existing construction projects, including: specifications, detail drawings, roof installation monitoring, documentation, investigations including hurricane, wind and earthquake damage, and dispute resolution.

## **PUBLICATIONS**

- 2012 **RICOWI: Hail – Dallas:** TO BE RELEASED IN 2012 - One of many participating volunteer authors, my input relates to Team 1 observer, data, reports, site photographer, author of the Team 1 Summary, and preparation and review of Report.
- 2010 **RICOWI: Hurricane Ike:** One of many participating volunteer authors, my input relates to advanced logistics team member, some Team 2 reports, site photographer, maps, aerial flyover, ASCE 7 wind design language and Meteorological introduction.  
**IRCC: SPF – Spray Polyurethane Foam – SPF Chapter for new IRCC Apprenticeship Manual for State Of California - co-author technical and graphic/photo contributor of SPF chapter.**
- 2008 **RICOWI: Hurricane Katrina:** One of many participating volunteer authors, my input relates to some Team 2 reports, site photographer, maps, aerial flyover photo data comparison, and ASCE 7 wind design language.
- 2007 **RCI Ricowi Seminar Highlights and Katrina Report, RCI Interface (Nov 2007)**
- 2006 **RICOWI: Hurricanes Charley and Ivan:** Assisted with many participating volunteer authors for Ivan, my input relates to some Team 2 reports, site photographer, maps.
- 2003 **"My Scariest Roof" San Francisco City Hall,** Republished, Roof Consultants Institute Interface November 2003.
- 2002 **"My Scariest Roof" San Francisco City Hall,** Roofers Exchange (October, 2002)
- 1993 **"Wind Uplift Construction, West Coast Low-Slope Roof Construction, Criteria and Requirements of the UBC",** Western Roofing (May/June, 1994).
- 1993 **"Hurricane Force, Part II, Understanding and Minimizing the Risk of Wind Damage",** Western Roofing (Jan/Feb, 1994).
- 1992 **"Hurricane Force, Part I, Understanding and Minimizing the Risk of Wind Damage",** Western Roofing (Nov/Dec, 1993) - co-author Philip Dregger.
- 1986 **"Single Ply Roofing Manual"** – New Module - State of California Apprenticeship Program. Assisted with the development and technical review.
- 1981 **"Maintenance, Repairs and Reroofing"** New Module – State of California Apprenticeship Program, wrote initial draft and co-author.

## **PRESENTATIONS**

- 2011 **CREIA:** California Real Estate Inspectors Assn. Waterproofing membranes, **August, Walnut Creek, CA**
- 2010 **Contractor:** Title 24 Part 6 - 2008 Energy Efficiency Roofing Updates, **March, Oakland, CA**
- 2009 **IRCC:** Title 24 Part 6 - 2008 Energy Efficiency Roofing Updates, **January, Watsonville, CA**  
**RCI:** So. Cal Chapter –Title 24 Part 6 – 2008 Energy Efficiency Roofing Updates, **March, San Francisco, CA**  
**RCI:** So. Cal Chapter –Title 24 Part 6 – 2008 Energy Efficiency Roofing Updates, **March, San Diego, CA**  
**CVRCA:** Title 24 Part 6 – 2008 Energy Efficiency Roofing Updates, **July, Stockton, CA**  
**Manufacturer:** Title 24 Part 6 – 2008 Energy Efficiency Roofing Updates, **September, Portland, OR**  
**URSC:** Title 24 Part 6 – 2008 Energy Efficiency Roofing Updates, **October, Downey, CA**
- 2008 **RCI:** Region 4 Winter Workshop – Traffic Deck Fluid Applied Membranes & Spray Polyurethane Foam Systems – The Good and Not So Good Case Studies January, **Honolulu, O'ahu, Hawai'i**  
**RICOWI-RCI:** Spring – What's On The Horizon – California Title 24 Part 6 Low slope Updates Feb, **Phoenix, AZ**  
**RCI:** Southern Cal Chapter - California Title 24 Part 6 – 2008 Low slope Updates October, **Long Beach, CA**  
**Manufacturer:** What's On The Horizon – California Title 24 Part 6 – 2008 Updates October, **Portland, OR**
- 2007 **RCI – WSRCA:** Region 6 Workshop -- Panelized Decks & Radiant Barriers – Condensation Potential; **June, Las Vegas, NV**
- 2006 **IRCC:** CA Title 24 Part 6 – 2005 Energy Efficiency Updates & Roofing, **Oakland & Castroville, CA**  
**Manufacturer Assn:** CA Title 24 Part 6 – 2005 Energy Efficiency Updates & Roofing, **Sacramento, CA, Chicago IL**  
**IRE:** (International Roofing Exposition – formerly NRCA event): Title 24 Part 6 – 2005 Where are We Now – ARMA sessions, panelist/presenter; **Las Vegas NV**  
**CVRCA:** CA Title 24 Part 6 – 2005 Energy Efficiency Updates & Roofing, **Stockton, CA**  
**RCI-WSRCA:** Gulf Coast Hurricane Observations, 2005 California Title 24 Part 6, **Las Vegas, NV**  
**DCT:** CA Title 24 Part 6 – 2005 Energy Efficiency Updates & Roofing, **Concord, CA**  
**Manufacturer Assn:** CA Title 24 Part 6 – 2005 Energy Efficiency Updates & Roofing, **Chicago, IL**

## PRESENTATIONS cont'd)

- 2005 **Westcon:** Hurricane Damage Investigations – Feb 2005, **Alameda, CA**  
**Manufacturer:** CA Title 24 Part 6 – 2005 Energy Efficiency Updates & Roofing, **Phoenix, AZ**  
**Manufacturer Assn:** CA Title 24 Part 6 – 2005 Energy Efficiency Updates & Roofing, **Toronto, Ontario, Canada**
- 2003 **RCI:** Region 6 Winter Workshop -- Panelized Decks & Radiant Barriers – Condensation Potential; Consultant Liabilities, **Honolulu, O’ahu, Hawai’i**
- 2001 **RCI:** Roof Observer Course Daily Reports & Construction Contract Documents, **Las Vegas, NV**, Also, Level 3 Advanced Roof Consulting Program including Contract Documents, Steep Slope Roofing & Waterproofing, **San Francisco, CA**
- 2000 **RCI:** Region 6 Technical Presentation – Elastomeric Roof Coatings – Marin Civic Center Reroofing and Waterproofing. Elastomeric coatings, colors, concrete preparation and detailing
- 2000 **RCI:** Annual Convention – Reroofing of the Marin Civic Center – elastomeric coatings, colors, concrete preparation and detailing
- 1998 **RCI:** Building Envelope Symposium – Panelized Deck & Radiant Barrier – Condensation Potential, covering systems, identification items, corrective items, safety considerations
- 1997 **IRCC:** OSB vs. Plywood Decking
- 1997 **RCI:** Performance of Roofs During Seismic Events
- 1996 **Western States:** Wind on Roofs, Co-Presenter & Panel Member
- 1993 **RCI:** Level 3 – Advanced Roof Consulting – Instructor, Wind and Specifications
- 1992, 1990 **USDA Forest Service:** Roof Maintenance and Replacement
- 1989 **IRCC:** (co-presenter) – Roofing Consultants and the Contractor
- 1988 **Contra Costa County Board of Realtors:** Presentation on Roofing
- 1987 **East Bay Roofing Contractors:** Roofing on the West Coast (co-presenter with Richard Fricklas), Claremont, CA
- 1986 **City of San Francisco Building Department:** Roofing Update Seminar,
- 1986 **Single Ply Familiarization Seminar**
- 1984 **National Roofing Contractors Association:** Instructor and Panel Member, Foreman & Superintendent Conference, Reno, NV

## EDUCATION / SEMINARS

- 2012 **Westcon** – Roof Drainage: What You Don’t Know Can Hurt You. **1 LU or CEH hours, January, Berkeley, CA**  
**RCI: So. Cal Chapter - 12<sup>th</sup> Annual Winter Workshop** – Condensation: Using Thermography to Identify Temperatures in Wall and Roof Assemblies, Condensation Related Wood Rot and Mold Growth: The Under Appreciated Role of Air Intrusion, Rooftop Solar PV: Key Considerations for Success from a Roof Consultants Perspective, Designing Single-ply Membrane Cool Roof Systems for Service & Durability, Understanding Long-term Weathering Performance of TPO Roofing Membranes, Bonded Pull Tests are Not Just for Your Roof Membranes Anymore, A Review of ASTM E 2359, Design Considerations for Open Joint Rainscreen Cladding System, Understanding ANSI/SPRI ES-1, Metal Edge Systems for Low Slope Roofs: Design, Testing, and Performance, Vapor Retarders and Barriers, Lightweight Insulating Concrete and Re-roofing Applications. **13 LU or CEH hours, January, Honolulu, O’ahu, Hawai’i**
- 2011 **RCI: So. Cal Chapter - 11<sup>th</sup> Annual Winter Workshop** – Trouble Shooting in Design of Construction Details, Building Envelope Peer Reviews, Consequential Structural Effects of Improper Design or Installation of Non-Structural Systems, Building Science & Infrared Thermography, Utilizing Infrared Imaging Detection for Cells for Unfilled CMU Walls, Inspection Guidelines & Investigation Standards for Unsafe Conditions on Bldg. Facades ASTM E2270-05, Critical Review of Life Span of TPO & PVC Membranes, Designing Specifying and Testing Windows for Water Penetration Resistance, Infrared Thermography for Roofing Investigations, “Google” and Its Applications for Use in the Practice for Roofing, Waterproofing & Ext. Envelope Consulting, Failure of the Transition of Curtain Wall to a Roof Expansion Joint. **13 LU or CEH hours, January, Honolulu, O’ahu, Hawai’i**  
**RCI: 26<sup>th</sup> International Convention:** Dynamic Water Vapor Permeance of Bldg. Materials and Benefits, Correlation Between Wind Resistance and Physical Properties of Fiberglass Shingles, Communication Strategies for Expert Witnesses, Development – FM for Steep Slope Coverings, PV’s, & Vegetative Coverings, DOE – Development of Roof Savings Calculator, Case Study – Historic Restoration Clay-Tile Roof, How Big is Too Big?: Effects of Table Size on Wind Uplift Resistance Evaluation, Case Studies: Roof and Cladding Failures Involving Internal Pressurization and Topographical Effects. **14 LU or CEH hours, April, Reno, NV**  
**Local:** Refining Construction Details Through Design Verification Testing; **2 CEH, April, Oakland, CA**  
**SEMICON-West & interSOLAR North America:** Solar Industry Convention **July 2 days, Moscone, San Francisco, CA**  
**XLIInsurance:** Lessons in Professional Liability **4.0 CEU (PDH), November, Concord, CA**  
**IRCC:** Roofs Over Decks That Leak Air – Recipe for Condensation Disaster, **December, Pleasanton, CA**
- 2010 **RCI: Region 4 - 10<sup>th</sup> Annual Winter Workshop** – “Honolulu – We Have A Problem” The Faulty Towers Story. Development of a claim, assembly of investigation and legal team; negotiations with developers, contractors and potential members of the team; defects process of identification and reporting; communications; steps to assess claims, expenditures on experts; quantitative and qualitative evaluations, planning an investigation, review of relevant documents, establishment of architect’s design concepts, review of maintenance history, analysis of weather history. Protocols & data - utilized to develop a Scope of Investigation and identify any necessary sub-consultants; investigation tools and methods – destructive/nondestructive; tools and reporting of the findings, sampling of materials after field testing & laboratory analysis to support field-testing, through litigation and repairs.. **12 LU or CEH hours, January, Honolulu, O’ahu, Hawai’i**  
**Soprema** – Waterproofing Types and Systems Overviews, Fluid applied coatings for waterproofing and unique repairs, **3.5 CEH, January, Walnut Creek, CA**

## **EDUCATION / SEMINARS (2010 continued)**

**NRCA – IRE International Roofing Exposition:** Exhibit Hall, 1 LU or CEH, New Orleans, LA

**RCI: 25<sup>th</sup> International Convention:** Winds of Change – resolving roof aggregate blow-off., Product Demonstration by Atlas Roofing Corp., Fastener Free Low-slope Roofing: Can It Resist Wind Uplift, Evaluation of Metal Fasteners Corroded from Contact with Wood Preservative, Buildings That Leak only on Sunny Days, Fire and Wind Resistance Standards for Vegetative Roofs, Leaks Drips and Damage: Investigation and Repair of The Envelope, The Effects of Debris in the Flow Rates of Roof Drains and Scuppers. 12.5 LU or CEH hours, March, Orlando, FL

**RICOWI (Roof Industry Committee on Weather Issues):** WIT (Wind Investigation Team) and HIP (Hail Investigation Program) **Update Training & Workshop:** Major Changes In The ASCE 7-10, Improved Roof Design – Learned From Four Hurricanes, Roof Ventilation – How You Can Avoid Design and Installation Errors, Reedy Creek Improvement District: Walt Disney World, WUFI – A Forensic Tool / Three Roof Related Disputes, Fire Testing of Rooftop PV's. Learning How to Design Your Roofing in the World of Cool. 7 CEH, March, Orlando, FL

**RICOWI:** Follow-up trip back into Mississippi on Katrina Team 2 Sites – February, Gulf Coast, Mississippi

**XLInsurance:** Contract Basics for Design Professionals 1.0 CEU (PDH), December, Concord, CA

**WESTCON:** A Symposium on Sheet Metal Flashing in Wall and Roof Assemblies Follow-up: Code Requirements & Stds., SMACNA Appendix B – Different Types of Sheet Metal, Sealing – Soldering - Welding, Field Joints, Edge Metal Wind Resistance ANSI/SPRI ES-1, Sheet Metal Flashing on Low Slope Roofing and Deck Waterproofing, Sheet Metal Flashing – Steep Sloped Roofing, Gutters, Wall Flashings, Flashing Details in Project Documents, Challenges for Reconstruction Architect and Contractor. 7 CEH, November, Berkeley, CA

2009 **RCI: Region 4 - 9<sup>th</sup> Annual Winter Workshop** – Ventilation of Low-Slope Roof Assemblies; Common Curtain Wall Problems, Liquid Applied Roof System, Roof Top Photovoltaic Panels – Technical, Economical and Warranty Considerations, Adhered Stone Veneer, Roof Moisture Surveys – Comparing Different Methods, Non-Destructive Test Methods for Roof Membranes, Weather Barriers: Do We Need Them 14 LU or CEH hours, January, Honolulu, O'ahu, Hawai'i

**24<sup>th</sup> International Convention:** Are Ice Dams and Shingle Degradation a Concern? New Tool To Predict Ventilation Performance of Insulated Steep Roofs; Designing Building Envelopes: Tips, Tricks & Lessons Learned, Sustainable Buildings: Long Term Envelope Durability, Professional Liability: Reducing Risk Exposures Through Insurance and Management, Building Science's Influence Over Building Codes, Roof Photovoltaic's – How To Save Money on Energy and Avoid Spending It on Roof Repairs, Elastomeric Wall Coatings.. Theory, Uses and Applications, Building Beyond The Code, 12.0 LU or CEH hours, March, Dallas, TX

**RCI:** Southern Cal Chapter –Title 24 Part 6 Updates, 5 LU or CEH hours, March, San Francisco, CA

**RCI:** Southern Cal Chapter –Title 24 Part 6 Updates, 5 LU or CEH hours, March, San Diego, CA

**RCI:** Southern Cal Chapter – Roof Drainage, 5 LU or CEH hours, October, Long Beach, CA

**RICOWI (Roof Industry Committee on Weather Issues):** WIT (Wind Investigation Team) and HIP (Hail Investigation Program) **Update Training & Workshop:** 2009 Hail Event, Hail Fundamentals & Detection Methodologies, Hurricane Ike – Low Slope Roof Investigations, - 2 sessions, Hurricane Ike, Steep Slope Investigations, The Myth Sisyphus: A Road Map to Greening our Buildings, ASCE 7 Updates, Hurricane Dolly Investigation. 7 CEH, March, Dallas, TX; **2009 Fall Update Workshop** Cool Roofing – How Mandates and Poor System Design Result in Unintended Results; Treated Wood & Fastener Corrosion; WUFI What Is It; Predicting and Preventing Roof Aggregate Blow-off; Condensation – The Overwhelming Impact of Air Infiltration; Green Roofing – Before Green; ASCE 7 Update for 2010; ICC Rating System for Green Buildings. 7 CEH, Sept, Portland, OR

**TRI (Tile Roof Institute):** TRI Specialist Certification, 6.5 CEH, April 22, 2009, Hunting Beach, CA;

**WESTCON:** Photography In Forensic Investigations, 1 CEH, March, Alameda, CA

**WESTCON:** Using Humidity/Temperature Loggers For Moisture Investigations Case Studies, 1 CEH, April, Alameda, CA

2008 **CA Energy Commission:** 2008 Title 24 Part 6 Energy Efficiency Updates and Workshops for possible proposed 2008 changes

**RCI:** Region 4 Winter Workshop – Monitoring The Building Envelope – Cracking, Temp & Condensation; Adhesive – Roof - New Technology; Green Roofing; Monitoring the Performance of Vapour Diffusion in Non-vented Attics; Restoration of Wood Framed Envelopes in British Columbia, Below Grade Waterproofing, Elastomeric Wall Coatings, Plaza Deck Waterproofing – Case Study; Blind Side Waterproofing, Traffic Deck Fluid Applied Membranes & Spray Polyurethane Foam Systems – The Good and Not So Good Case Studies 14 CEH, January, Honolulu, O'ahu, Hawai'i

**23<sup>rd</sup> International Convention:** RCI Roof Consulting 25 Years; Energy Efficient Roof Designs; Integrating Thin-Film Photovoltaic's onto Building Envelope Surfaces; Understanding Insurance Exposures; Wind – Roof Calculator; Analysis of a Roof Failure; The Roof as an Air Barrier 9.75 CEH, March, Phoenix, AZ

**RCI:** Southern Cal Chapter – Leeds Design and Overview; Title 24 Part 6 Updates, 5 CEH, Long Beach, CA

**RCI:** California Code updates, 6 CEH, San Francisco, CA

**RICOWI (Roof Industry Committee on Weather Issues):** WIT (Wind Investigation Team) and HIP (Hail Investigation Program) **Update Training & Workshop:** Hurricane Fire & Wind Performance of Garden Roofs; CA Title 24 Part 6 Updates – Low & Steep Slopes; Cool Roof Rating Council; Above Sheathing Ventilation; CA Wildland-Urban Interface Code Update; 2008 Hail Investigation Event; What Do Climatologists Know About Hail?. 6.5 CEH, February, Phoenix, AZ;

2007 **RCI:** Region 6 Winter Workshop: EIFS Update – Improvements in Design & Installation, Repair of Concrete High-rise Buildings, Wall Sealants, ASTM E2128 Water Leakage, Design of Ext. Walls, Preparing Roof & Waterproofing Specs, Comp Shingles – Wind & Seal Tab Technology, Roof or Not to Roof over Concrete Decks, Roof Coatings, Single Ply Roof Systems. 14 CEH, January, Honolulu, O'ahu, Hawai'i;

## **EDUCATION / SEMINARS (2007 continued)**

**22<sup>nd</sup> International Convention:** Zero Lot Line Waterproofing; Roofs of the World – Underlayments and Hail; Case Study – Brick Veneer & Masonry Design; Roofs – Quantifying Air Leakage; Safety – Fall Protection & Inspecting – Rooftop Safety **9.75 CEH, March, Orlando, FL**

**RCI – WSRCA:** Region 6 Workshop - Retrofitting with LWIC; To Roof or Not Over Concrete Decks; FMG Updates; Studies – Shingle Wind Resistance & Hail; Design, Installation & Maintenance for Green Roofing **6.0 CEH, June, Las Vegas, NV**

**XLInsurance:** Liability IQ for Architects and Engineers **4.0 CEU (PDH), June, Concord, CA**

**RICOWI (Roof Industry Committee on Weather Issues):** WIT (Wind Investigation Team) and HIP (Hail Investigation Program) **Update Training & Workshop:** Hurricane Katrina follow-up; Roof Damage Data Forms and database; Florida Building Code Updates; Hail Investigation Training; Hurricane Katrina Report. **6.5 CEH, Orlando, FL; Fall Seminar – Hurricane Katrina Report – Steep slope & Low Slope, New Orleans Building Code Updates, App. & Performance of Asphalt Shingles, Roof Edge Performance, Wind Related Mitigation & Code Updates; Battling Hail with Impact Resistant Roofing & follow-up trip back into Mississippi on Katrina Team 2 Sites - 6.5 CEH, New Orleans, LA**

**2006 CA Energy Commission:** 2008 Title 24 Part 6 Energy Efficiency Updates and Workshops for possible proposed 2008 changes, Participant in developing CEC ad hoc training modules.

**RCI:** Region 6 Winter Workshop: ASTM E-2266-04 - Standard Guide for Design & Construction of Low-Rise Frame Building Wall Systems to Resist Water Intrusion, ASTM 2112 - Window and Door Installation - Master Installers, 2004 Hurricanes - How Air Infiltration and Component Deterioration Contributed to Roof Covering Damage, The Wind Investigator-How to Adjust Wind Velocities for Exposure, Height, & Averaging Time, Metal Roofing – Product Design Waterproofing, Roofs Can Last in Excess of 30 years - But Most Don't, Curtain Wall Systems: A practical Approach to Evaluation and Repair, Masonry Walls, Common Problems and Possible Solutions, CNRCC Guarded Hot Box Energy Efficiency of Roof Assembly Testing, Investigation After Hurricane Ivan: Pensacola Justice Center. **14 CEH, January, Honolulu, O'ahu, Hawai'i;**

**21<sup>st</sup> International Convention:** Weakest Link: Wind Performance on Mechanically Attached Systems, Breathable Roof Underlayment's, TPO Performance, 2005 Roof Industry Durability & Cost Survey, Roof Life Cycle Cost – Uniform Annual Cost, Roofs of England, Brazil, Finland & Japan, Architecture of Sculpture – Case Study, CA Title 24 Part 6 – The First Six Months, **11 CEH, March, Phoenix;**

**RCI Region IV – WSRCA:** Gulf Coast Hurricanes, Treated Wood-Roofing-Energy, Legal Issues in Roofing, Title 24 P 6 Energy Code Updates, **6 CEH, June, Las Vegas**

**RCI Region IV – SF:** Energy Codes and ASHRE, California Energy Code Updates, Current Changes FM 1-29, Liquid Applied Waterproofing; **6 CEH, August, San Francisco**

**RICOWI (Roof Industry Committee on Weather Issues):** WIT (Wind Investigation Team)

**Update Training & Workshop:** Understanding Wind Effects on Roofs, Roof Wind Investigations, Team Struct., Field Reports, Photo Documentation, Equip./Logistics, Mechanically Attached Single Ply, **3.75 CEH, Phoenix AZ**

**Spring Seminar – Hurricane Findings:** Dept. of Energy & RICOWI, Wind Investigator – Velocity at Roof Level, Katrina low and steep slope Investigations, Oklahoma Hailstorm, Calif. Peak Demand Energy, PV Systems, Fastener Corrosion **6.5 CEH, Phoenix AZ, Fall Seminar – Hurricane Katrina Roof Investigation, TTU Research Update, TDI Windstorm Inspection, FM Data Sheet Updates 6.5 CEH, Houston TX**

**WESTCON:** Fall Seminar - STUCCO As a Weather Protection System, **7 CEH, November, Albany, CA**

**IRE:** (International Roofing Exposition – formerly NRCA event): Title 24 Part 6 – Where are We Now – ARMA sessions, panelist/presenter; exposition floor, **2 CEH, Las Vegas NV**

**ANSI/SPRI ES1:** Wind Design Guide, Updates, changes, and calculations, **1 CEH, May, WebEx,**

**Factory Mutual:** Wind design and LPDS changes and more coming, due to hurricane findings and losses and consensus ANSI/SPRI-ES1/FM4435, **1 CEH, June, WebEx**

**WESTCON:** Fall Seminar, **7 CEH, November, Berkeley, CA**

**SIPLAST:** Special RT surface treatment for LWIC and Parapro. **Hayward, CA**

**CERTAINTED:** Consultant Advisory Counsel September, **Fremont, CA**

**2005 CA Energy Commission:** 2005 Title 24 Part 6 Energy Efficiency Updates and Workshops for possible 2008 changes.

**20<sup>th</sup> International Convention Roof Consultants Institute:** SPRI/ANSI Standards & IBC, Roof Design – Engineering/Architecture, Adv. Sustainable Roofing, Design Considerations – Cold Storage Environment, Tile Roof Systems – Analysis & Inspection, Fastener Corrosion ACQ wood preservatives, Teach the Teacher Workshop, **11.0 CEH, April, Miami Beach, FL;**

**RICOWI:** WIT Update Training & Workshop: Understanding Wind Effects of Roofs, Roof Wind Investigations, Team Structure, Field Reports, Photo Documentation, Equip. & Logistics, **5.5 CEH, Miami Beach FL,** Spring Seminar – Hurricane Findings: Dept. of Energy & RICOWI, Tile Investigations, Metal/Wood/Comp. Roofing, Metal Roofing, Low-Slope Roofing, Oklahoma Hailstorm, Low-Slope Roofing – SPly, Low-Slope Roofing – SPF, Low-Slope Roofing – Sply & BUR **7.25 CEH, Miami Beach FL**

**2004 Roof Consultants Institute:** Region 6 Winter Workshop: Building Envelope Design & Mold, Tropical Cladding Options, EPDM Restoration, Re-Roofing and Re-Waterproofing Projects System Selection, Asphalt Today, Self Adhering Membranes, Designing Low Slope Systems, Hawai'i Energy Code, Curtain Walls, Stucco Leak Investigations **14 CEH, January, Honolulu, O'ahu, Hawai'i;** National Convention: Good Architecture – Poor Roof; New Wind Resistance Test Standards for Shingles **5.0 CEH, April, Reno, NV;**

**RICOWI Fall Program:** Wind & Hail Investigation Programs, Hurricanes Ivan & Charley and Hail (Oklahoma City). **7 CEH equiv., November, Tampa, FL**

**Western Construction Consultants Assn:** Stucco – What works and What Doesn't **1 CEH equiv., October, Alameda, CA**

**EDUCATION / SEMINARS (2004 continued)**

- RICOWI Fall Program:** Wind & Hail Investigation Programs, Condensation – Overlooked Moisture Source, ARMA Wind Design for Shingles, CRRS & CA Energy Code, New Dynamic Wind Uplift Test, Roofing Technology – Cover Boards, ORNL Energy and Product research facility and program tour. **.7 CEU equiv., November, Oak Ridge, TN**
- 2003** **Roof Consultants Institute:** Region 6 Winter Workshop: EIFS, Panelized Decks/Radiant Barriers – Condensation Potential, Alternative Provisions on Consultant contracts, Consultant Liabilities, Tile Roofs: Essentials and Improvements, Mold-Based Litigation, High-rise Wind Pressure Design & Considerations, Property Condition Assessments, Reroofing and Building Code Compliance. **1.4 CEU, January, Honolulu, O’ahu, Hawai’i.** Region 6 Summer Workshop: Mold – Case Studies, Mock Trial. **.8 CEU, June, Las Vegas, NV**
- Western States Roofing Contractors Assn.:** Convention: Best “Dam” Details in the West, GAFMC Roofing (Part 1 & Portion Part 2), UL Class B required – Just Bid It Anyway. **.5 CEU equiv., June, Las Vegas, NV**
- Western Construction Consultants Assn.:** Quality Control – Everyone’s Goal, Whose Responsibility: What Is Quality Assurance? Liability Insurance Premium Increases, Code Compliance, Specifications, Reports and Communications, Role of Building Official, Contractor Roles, Owner Rep. Roles, Manufacture Roles, Independent Inspections. **.8 CEU equiv., November, Emeryville, CA**
- 2002** **Roof Consultants Institute:** Region 6 Summer Workshop: Services, contacts, liabilities, protections, metal roofing and problems with below-grade waterproofing. **.7 CEU, August, San Francisco, CA,**
- RICOWI /Region 6 Joint Fall Program:** Weathering of Concrete & Clay Tile & RTI ICBO, Condensation – Sometime Overlooked Sources, Metal Shingle/Panels, ICC Product Eval./ICBO, Roof Color – Energy, CA Title 24 Upcoming Changes, Roof Top Gardens. **.7 CEU, November, San Diego, CA**
- 2001** **Roof Consultants Institute:** Western States Contactor’s Association trade show, Roofing Substrates, Contracts, Insurance & Indemnity, Up on Roofs of Mega Resorts. **.5 CEU, June, Las Vegas, NV** Roof Observer Course including Role, Daily Reports, Ethics, Codes, Construction Contract Documents, Low & Steep Slope Roofing & Spray Foam (SPF). **1.0 CEU, June, Las Vegas, NV** Level 3 Advanced Roof Consulting Program including Roof Flashing, Thermal & Energy, Roofing Warranties, Moisture II, Chemistry, Wind, Drainage, Roof System Management. **3.0 CEU, San Francisco, CA** Green Roof Workshop including Green Roofs 101, Setting the Standards, Waterproofing, Defending a Green Roof, Landscape Design, Plants & Maintenance, Fluid Applied Roof Case Study, Thermoplastic Case Study. **.7 CEU, San Francisco, CA**
- National Roofing Contractors Association (NRCA):** Trade Show and technical sessions, San Francisco, CA
- 2000** **15<sup>th</sup> International Convention Roof Consultants Institute:** Roof Deck related – OSB v Plywood, Fastener Performance in OSB, Moisture Effects on OSB, Fire Testing – UL & ICBO related to OSB v Plywood, ICBO presentation on AC sheets and testing. **.7 CEU, San Diego, CA** Elastomeric Roof Coatings – Marin Civic Center Reroofing and Waterproofing, Keys to Successful Fluid-Applied Waterproofing Systems, Avoiding Pitfalls in Elastomeric Wall Coating Systems. **.5 CEU, Marin, CA;** Moisture Infiltration & Condensation, Thermoplastic Membranes, Elastomeric Roofing at Marin Civic Center, Metal Roofing for Cold Regions, Wind Load Comparisons, Fluid Applied Waterproofing, Rooftop Sampling and Inspection Procedures. **12.5 CEU, Reno, NV**
- RICOWI:** Roofing Industry Committee on Weather Issues (RICOWI) - Wind Event Investigation Team Member (WIT) team training for Roof Industry Committee on Weather Issues. **1.0 CEU, Reno, NV**
- 2001 Systems, Tom Kelly, P.E.:** Wind Uplift on Roofs & ASCE 7 – Aspects of newer 3-second gust measurement and related increase in uplift; Air barriers & retarding, FMG ISO 9000 program for certified roof installers and specifiers. **1.0 CEU, Oakland, California**
- 1999** **Dow Corning / Centimark:** Spray Polyurethane Foam & Coating Seminar, Burlingame, CA
- United Coatings / BUR Services:** Spray Polyurethane Foam Seminar, Dublin, CA
- 1998** **Roof Consultants Institute:** Building Envelope Symposium – Masonry Cladding & Moisture Problems, Condensation & Compact Roof Assemblies, Panelized Deck & Radiant Barrier – Condensation Potential, Material Problems Caused by Condensation, Attaching Base Sheets to Wood Decks, Overview of Low Sloped Roofs, Expansion & Contraction of Roof Systems, Cellular Concrete over non-vented Substrates; **(2.0 CEU's, 20 LU's) Oakland, CA**
- American Institute of Architects:** Project Team Bridges for Small Firms – Forming the Team to Manage Project Risk, Flying Solo – Managing Professional Liability Risks, The Future of Specifications, Historic Preservation for Practitioners, Mergers & Acquisitions, Understanding Construction Disputes and Claims, Marin County Civic Center Tour seminars, **1.9 CEU, 19 LU's San Francisco, CA**
- 1997** **12<sup>th</sup> Roof Consultants Institute Convention:** Sustainable Roofing, Slate Installation, Roof Edge Pressure Co-Efficient, Moisture Control in Low Slope Roofing, EPDM Reroofing vs. Re-cover, Round Table Technical Discussions, Preliminary Roofing Design, Tile Installation, Performance Criteria for Roof Drainage, Sheet Metal Installation, Roof Coatings a Valuable Tool, WSRCA Tests of Asphalt Shingles, Anaheim, CA & SPI/SPFD Spray Foam Inspections **2.15 CEU, Anaheim, CA**
- Spray Plastics Institute/Spray Polyurethane Foam Division:** SPF seminars **.4 CEU, Anaheim, CA**
- Roof Consultants Institute:** Roof Tile Fastening Dynamics Related to High Wind & Seismic Events, Beyond FMRC 1-90, EIFS Wall Systems - How They Work and Sometimes Don't **.35 CEU, Oakland, CA**
- 1996** **Butler Buildings:** Metal Roof Design and Specifying, Kansas City, MO
- Western States Roofing Contractors Association:** Wind on Roofs Seminar, Reno, NV
- National Roofing Contractors Association:** Education Workshops – Building Codes Update, Residential/Steep Roofing Issues, OSHA Regulatory Update, Current Technical and Code Issues, San Diego, CA

**EDUCATION / SEMINARS (continued)**

- AIA – Continuing Education:** EIFS Symposium, exterior wall system design and considerations, sealants, barrier systems .2 CEU, San Francisco, CA; Waterproofing of Paved Plaza Decks, Garages & Underground Structures .3 CEU, San Francisco, CA
- 1995 **SMACNA:** Sheet Metal Roofing – Copper, Stainless and Zinc, San Francisco, CA
- 1994 **8<sup>th</sup> Roof Consultants Institute Convention:** Standard Contracts/ADR tapered roof systems, codes, insurance consultant round table 1.2 CEU, San Antonio, TX
- 1993 **Roof Consultants Institute:** Level 3, Advanced Roof Consulting 3.0 CEU, San Francisco, CA  
**Simpson Gumpertz & Heger:** The Building Envelope Solutions to Problems .8 CEU, Las Vegas, NV
- 1992 **Owens Corning:** Roofs that Work/Consultant Program, BUR – Proven Performance .8 CEU, Las Vegas, NV  
**Roof Consultants Institute:** Seminar on Metal Roofing .2 CEU, Oakland, CA
- 1991 **Construction Specifications Institute:** Specification and Document Preparation Course 2.0 CEU, San Francisco, CA
- 1990-1995: **National Roofing Contractors Association:** Education Workshops – Tile, Steel Decks, Shingles, OSHA Updates, Asbestos, San Diego, New Orleans Plywood vs. OSB, Built-Up Roofs, San Francisco, CA.
- 1989 **National Roofing Legal Resource Center:** Educational Seminars, Hyannis, MA  
**Construction Inspectors Association:** Seminar on Fire Resistive Construction, Antioch, CA
- 1988 **Roof Consultants Institute:** Seminars on Roofing/Litigation/Wind/Asbestos, Oakland, CA
- 1987 **National Roofing Contractors Association:** Educational Workshops, New Orleans, LA
- 1986 **Roofing Industry Educational Institute:** Industry Update Course .8 CEU, San Francisco, CA
- 1985 **Roofing Industry Educational Institute:** Design and Specification of Roofing Systems .8 CEU, Las Vegas, NV  
**National Roofing Contractors Association:** Education Workshops and Management Seminar
- 1984 **National Roofing Contractors Association:** Foreman & Superintendent Conference, Reno, NV
- 1978-1980 & 1982-1984 **Search & Rescue:** Seminars and Sheriff's Department Training, Barstow and Castro Valley, CA
- 1979 **Laney College:** Techniques of Teaching (60 hours) to obtain State Teaching Credential for Community College and Vocational, Oakland, CA
- 1976 - 1979: **Roofers Local 81 Union Apprenticeship School,** San Francisco Bay Area
- 1966 – 1974: **U.S. Army and U.S. Army Reserves**  
*Chemical & Biological Equipment/Maintenance & Operations Unit*  
 Responsible for maintenance of chemical equipment, recon and logistics and field operations, education, supply functions. S. SGT E-6 (2 reenlistments – Honorable Discharges). Acting N.C.O. Basic Training (1967) - Fort Benning, GA; Fort McClellan, AL and additional training at Fort McClellan, AL, Niagara Falls, NY & Fort Drum, NY.
- 1966 **Graduated Maryvale H.S.,** Cheektowaga, NY

## **OTHER ACCOMPLISHMENTS**

- 2011: NRCA 27 year member
- 2011: RCI – 19 year member
- 2006-2009 **Technical Peer – State of California 2008 Title 24 Part 6:** Assisted the Energy commission with technical review of non-residential and residential compliance manuals for roofing. Participated in development of literature and Power Point for teaching T24 Part 6 for CEC ad hoc group for roofing.
- 2008 - 2010 **Cool Roof Rating Council (CRRC) – ANSI Standard consensus body member for Standard CRRC-1.**
- 2004 - 2009 **Roof Consultants Institute:** National Nominating committee.
- 2006 **CARE:** (Center for the Advancement of Roofing Excellence): *“Meeting the Energy Challenge”: A CARE Special Report -* Video production as Co-presenter/interviewee on Title 24 Part 6 and Roofing
- 2005 **Oakridge National Laboratory:** Technical review of William Miller PhD, P.E. paper on “Cool Roofing” Experimental Analysis of the Natural Convection Effects Observed within the Closed Cavity of Tile Roofs.
- 1992 - 2009 **State of California Credentialed Instructor – Roofing Apprenticeship** Hayward/Sacramento/Stockton Education Centers non-Union Apprenticeship. Chabot College & Adult Ed "Limited Service for roofing and waterproofing" California Community College Lifetime teaching credential, and previous Vocational teaching credential for roofing and waterproofing. Periodic teaching and guest speaking of modules on built-up roofing, tile, repair and maintenance, cold applied roofing, blue prints and specifications, and general roofing safety.
- 1997 **NFPA: Firewise Construction:** Technical peer review consultant - Input and peer review for National Fire Protection Association (NFPA) task group for their series of video tapes "Firewise Construction".
- 1988 **Technical Peer – State of California:** Assisted the State of California Consumer Affairs Division of the Contractor's State Licensing Board in the final development and review of the C-14 Sheet Metal Roof & Siding Contractor Licensing
- 1981 - 1990 **State of California Credentialed Instructor – Union Apprenticeship** Laney College/Martinez Adult Education Center – Bay Area Union Apprenticeship Chabot College & Adult Ed Vocational "Limited Service" California Community College teaching credentials for Roofing and Waterproofing, with a former credential for and Vocational also. Weekly teaching of modules on built-up roofing, waterproofing, single ply roofing, tile roofing, steep roofing, repair and maintenance, cold applied roofing, blue prints and specifications, general safety and First Aid.
- 1978 - 1984 **Search and Rescue Unit –** Lieutenant in charge of cliff and steep terrain rescue for rappel team and for training of same. Involved in training, recovery, medical, and fire. Alameda County Sheriff's Department, Rescue Unit, Office of Emergency Services.