

# CURRICULUM VITAE

## PHILIP D. DREGGER, PE, RRC, FRCI

2339 Stanwell Circle, Suite A  
Concord, CA 94520-4875  
(925) 356-7773 • (925) 356-7776 fax  
e-mail: [pdregger@DNG-Group.com](mailto:pdregger@DNG-Group.com)  
(Above link deactivated to protect against spam)

### SUMMARY

Roofing and waterproofing expert Philip D. Dregger is a Professional Engineer (CA, NV, MN), Registered Roof Consultant, author, and Fellow of the Roof Consultants Institute with over 25 years experience in investigation, design, and expert witness testimony (>50 depositions / arbitrations / trials) about virtually all roof and waterproofing systems, including below grade. Mr. Dregger has special expertise in roof wind damage (hurricanes), code compliance, rooftop solar photovoltaics (PV), hygrothermal condensation analysis (WUFI), hail, roof collapse due to blocked roof drains or overflow scuppers, and complex leak problems.

### EDUCATION

- 1978      Master of Science in Civil Engineering  
            University of Minnesota - Minneapolis
- 1976      Bachelor of Science in Civil Engineering  
            University of Minnesota - Minneapolis

### REGISTRATIONS

Professional Engineer (PE), State of Nevada, No. 20121, June, 2009  
Registered Roof Consultant (RRC), No. 0027, March, 1993  
Professional Engineer (PE), State of California, No. C45646, August, 1990  
Professional Engineer (PE), State of Minnesota, No. 14746, February, 1981

### PROFESSIONAL AFFILIATIONS (beyond simple membership)

- RCI (Roof Consultants Institute)  
Director (1990 - 1993), Fellow (1997), Education Task Force (1992 – 1997)
- CRRC (Cool Roof Rating Council)  
Board of Directors (2010 to Present)
- SIGDERS (Special Interest Group for Dynamic Evaluation of Roofing Systems)  
RCI Liaison Representative (2009 – Present)
- RICOWI (Roofing Industry Committee On Weather Issues)  
Executive Committee, RCI Representative (1992 - 2010)  
Researcher, Wind Event Investigation Program (1996 - Present)  
Researcher, Hail Investigation Program (2011)
- RIEI (Roof Industry Educational Institute)  
Faculty Member (1993 - 2001)

## **EMPLOYMENT EXPERIENCE**

- 1991 - Present      President - Technical Roof Services, Inc. (TRS), Concord, California  
Vice President - Pacific Building Consultants, Inc. (PBC), Concord, California  
Provide full range of roof, waterproofing, building envelope, and solar photovoltaic (PV) consulting services including condition evaluations, failure investigations, defect inspections, expert witness, construction documents, condensation analysis (WUFI), moisture surveys for wet insulation, and observations of construction activities.
- 1989 - 1991      Senior Engineer  
Wiss Janney Elstner Associates Inc., Emeryville, California  
Performed condition studies of exterior building envelopes and developed repair procedures. Investigated roofing, waterproofing, stucco, and masonry failures and provided expert testimony. Served as project manager responsible for cost control, client liaison, and quality assurance during construction.
- 1988 - 1989      Manager, Construction Materials Department  
Twin City Testing Corporation, St. Paul, Minnesota  
Developed strategic business and marketing plans. Monitored and controlled financial performance of department's four profit centers. Restructured department and implemented total quality system. Investigated concrete, masonry, roof, and waterproofing failures.
- 1984 - 1988      Supervisor, Roofing Department  
Twin City Testing Corporation, St. Paul, Minnesota  
Guided development and growth of roof engineering and testing services. Provided expert testimony on roofing failures, technical and administrative supervision for department and training of engineering staff.
- 1981 - 1984      Project Engineer, Soils and Geology Department  
Twin City Testing Corporation, St. Paul, Minnesota  
Coordinated and directed QC testing services (i.e. soils, concrete, reinforcing steel and NDT) for major construction projects. Investigated and recommended repairs for foundation and materials related problem conditions including moisture intrusion.
- 1978 - 1981      Civil Engineer, Soils and Geology Department  
Twin City Testing Corporation, St. Paul, Minnesota  
Performed engineering and construction observations on geotechnical and earthwork projects. Expertise in embankments, building foundations, retaining walls, below-grade waterproofing, and pre-stressed rock anchors.

## **INDIVIDUAL HONORS/AWARDS**

- 1997              "Fellow of the Institute"  
Roof Consultants Institute
- 1992-1996      "Outstanding Volunteer Award"  
Roof Consultants Institute
- 1985              "Young Engineer of the Year Award"  
Society of American Military Engineers

## **PUBLICATIONS (partial list)**

- "Cool Roofs Cause Condensation – Fact or Fiction?" Western Roofing Magazine, Jan/Feb 2012.
- "Rooftop Photovoltaics" Proceedings 24<sup>th</sup> RCI International Convention, March 12-17, 2009, Dallas, TX.
- "California Energy Code – 2008 Updates" Western Roofing Magazine, November/December 2008.
- "California Cool Roofs: A Snapshot of Installed Costs," Western Roofing Magazine, November/December 2006.
- "Hurricanes Charley and Ivan Investigation Report," RICOWI Wind Investigation Program Report, March 2006, authored 1 of 9 Report Sections.
- "The Wind Investigator – How to Approximate Wind Velocities at Roof Level," RCI Interface, October, 2005.
- "Lessons Learned from Florida Hurricanes", RCI Interface, February 2005, co-authors: Lynne Christensen, Dave Roodvoets, et al.
- "Air Infiltration–The Enemy of Wind Resistance & Condensation Control", RCI Interface, June 2002. (Listed as reference document in 2011 Baskaran paper "Air Intrusion and Its Effect on Moisture Transport" and in 2009 ASTM Manual 18, Chapter 16 "Roofs" by Wayne Tobiasson.)
- "Steep Roofing-Underlayment Upgrades that Sometimes Aren't", Western Roofing, January/February 2001 (reprinted in Copper and Common Sense, 8<sup>th</sup> Edition, 2005, 5.A.4ff).
- "Comparing SBS and SEBS Polymers – Factual Statements can Still be Misleading", RCI Interface, October 1998.
- "Heavy Duty Walkways — A Simple Suggestion for 'Jolt-Less' Protection", Western Roofing, January/February, 1997.
- "Lightweight Decks and FMRC Approvals", RCI Interface, September, 1996.
- "Roof Coatings – Selection of Roof Coatings can be Confusing", Western Roofing, March/April, 1995.
- "Asking the Impossible — Merging Wood Decks and FM Approved Assemblies is Sometimes Impossible", Western Roofing Magazine, Jan/Feb, 1994.
- "Hurricane Force, Understanding and Minimizing the Risk of Wind Damage", Western Roofing, Nov/Dec 1992 (Part I) and Jan/Feb 1993 (Part II).
- "Role of Air-Retarders Deserves Closer Scrutiny", Professional Roofing, October, 1991 (Listed as reference document in ANSI/SPRI RP-4-1997 "Wind Design Standard for Ballasted Single Ply Roofing Systems").
- "Acrylic Roof Coatings — Not a Quick Fix for Bad Damage", RSI Magazine, October, 1990.
- "Cold Weather Roofing Failures", Proceedings - ASCE Cold Regions, Engineering Conference, University of Minnesota, February, 1989, co-author Richard Knatterud.
- "What Seams to be the Problem", Roofer Magazine, February, 1988.

## **PRESENTATIONS (partial list)**

- 2012 "Roof Drainage – What You Don't Know CAN Hurt You", WESTCON Meeting, Oakland, CA
- 2011 "Rooftop Photovoltaics – Key Considerations for Success", RICOWI Spring Seminar, Reno, NV
- 2010 "WUFI - A Useful Forensic Tool - Three Roof-Related Disputes" RICOWI Spring Seminar, Orlando, Florida
- 2009 "Condensation – The Overwhelming Impact of Air Intrusion", RICOWI Fall Seminar, Portland, Oregon
- 2008 "Rooftop Photovoltaics – How To Save Money on Energy and Avoid Spending It All On Roof Repairs", RICOWI Fall Seminar, Charleston, South Carolina.
- 2008 "California Cool Roofs – 2008 Energy Code Updates" WESTCON Meeting, Oakland, California.
- 2007 "Wind Design - ASCE 7, Minimum Design Loads for Buildings and Other Structures" RCI SoCal Chapter 'Road to the RRC' Lecture Series, Los Angeles, California
- 2006 "Cool Roofs and Code in California – A Consultant's Perspective," RCI Convention, Phoenix, Arizona
- 2005 "Performance of Low-Sloped Roofs during Hurricane Ivan – Team 4," Preliminary Report, RICOWI Wind Investigator Program, Miami, Florida
- 2003 "Roof Moisture Surveys – How Do Different Methods Compare?" RCI/WSRCA Convention, Las Vegas, Nevada
- 2002 "Why Roofs Leak" Association of Facility Engineers, Santa Clara, CA
- 2002 "Retrofitting with Lightweight Insulation Concrete – Tips to Avoid Surprises" RCI Winter Workshop, Honolulu, Hawaii
- 2002 "Condensation – The Hidden Source of Moisture" ASCE Forensic Engineering Technical Group, Irvine, California
- 1999 "Code Considerations" and "Life Cycle Costing" Lectures Roofing 2000 Seminar, San Mateo, California
- 1999 "Roof Wind Design" and "Thermal Insulation" Lectures RCI Advanced Roof Consulting, Oakland, California
- 1998 "Condensation in Non-Vented Roofs" RCI Building Envelope Symposium, Chicago, Illinois  
RCI Building Envelope Symposium, Oakland, California
- 1997 "Beyond 1-90, New FMRC 1-120, 1-150 and 1-180 Ratings" RCI Technology Update, Oakland, California
- 1996 "Ways to Limit Contractor Liability" National Roofing Legal Resource Center, Palm Springs, California
- 1996 "Roof Wind Damage Investigations" RICOWI Wind Investigation Program, Oak Ridge National Laboratory
- 1995 "Roof Wind Damage — How It Starts and Progresses" RICOWI Training Course, Ottawa, Canada

## **PRESENTATIONS (continued)**

- 1995 "A Survey of Built-Up Roof Systems"  
American Institute of Architects, Oakland California Chapter
- 1995 "Failures Due to Sun, Wind and Salt Air"  
RCI Building Envelope Symposium, Southern California
- 1994 "Roof Coatings — A Consultant's Perspective"  
Roof Coating Manufacturers Association
- 1994 "Tile Fastening Considerations"  
Roof Consultants Institute, Oakland, California
- 1993 "Assessing Wind Damages - Hurricane Iniki"  
Roof Consultants Institute, Honolulu, Hawaii
- 1993 "Roping In An Ally — The Professional Roof Consultant"  
Single Ply Roofing Institute's 11th Annual Conference
- 1992 "Roof Decks and Ballasted Single Plys"  
Western States Roofing Contractors Association, Annual Convention

## **ACADEMIC HONORS**

Graduated first in Civil Engineering, Class of 1976, University of Minnesota  
Awarded Sommerfeld Grant for Academic Achievement  
American Society of Civil Engineering Student Award

## **SPECIAL PROJECTS**

- 2006 **Patent Infringement** – Validity analysis of patent involving tile roof systems.
- 2005 – **CA Title 24 Part 6** – Technical assistance to association of roof manufacturers  
Present regarding California Energy Code (CA Title 24 Part 6)
- 2004 **Hurricane Damage (Ivan)** – Team leader, investigator and report writer as part of  
Department of Energy/RICOWI study of roof system performance in Pensacola,  
Florida in wake of Hurricane Ivan.
- 2000 – **Manufacturer's Advisory Panels** - Invited to participate as consultant on advisory  
2006 panels to manufacturers regarding attributes and limitations of current and proposed  
roof products (Johns Manville, Georgia Pacific, CertainTeed)
- 1989 – **University of California** - Condition evaluations, leakage investigations, specifica-  
Present tions and drawings, repair recommendations regarding roof and waterproofing  
considerations for several Halls on the Berkeley campus.
- 1999 – **County of Santa Cruz** - Schematic design, contract documents and construction  
2008 observations for several reroof projects over critical facilities. Design requirements  
included completion of documents in a three-week period and restrictive controls on  
"fume" and "noise" generation during reroof work.
- 1996 – 1998 **San Francisco City Hall Restoration** - Member of consultant team for project that  
received the Building Design and Construction "Reconstruction Project" Award and  
the National Trust for Historic Preservation Honor Award.
- 1991 – 1998 **Mervyn's Stores** – Technical assistance on several projects including leak investiga-  
tion, condition evaluation, reroof consideration, and earthquake damage.

## **SPECIAL PROJECTS (continued)**

- 1992 – 1997 **Pacific Bell Facilities, Northern California** – Schematic design, contract documents, and construction observations for several reroof projects of critical facilities including high-rise metropolitan and remote mountainous sites. Special design requirements to maintain weather protection during code level windstorms and moderate seismic events.
- 1997 **Spelling Mansion, Los Angeles, California** – Expert consulting and trial testimony regarding roof systems on Los Angeles, California, Spelling Residence.
- 1995 **Disney Sound Stages 6 & 7** – Design and consultation services regarding PVC roof and building envelope.
- 1991 – 1994 **Kaiser Medical Centers** - Roof management programs for seven (7) medical centers with over 300 roofs and more than 800,000 square feet of roofing.
- 1995 - Present **Historic Preservation** - Technical consulting and reroof document preparation regarding reroofing of historic structures. Roof systems include clay tile, sculpted wood shingles, slate, tin and flat-seam copper.
- 1989 – Present **Dispute Resolution** – Expert consulting and expert witness assistance regarding roof and waterproofing legal claims. Participated in mediations, settlement conferences, arbitrations, depositions and/or trial testimony in over 50 actions.
- 1989 – Present **Insurance Claims** – Investigation into causes and extent of damage claims to low-sloped roofs, steep-sloped roofs, and to waterproofing systems due to hail, wind, and fire.
- 1997 **NFPA Firewise Construction** – Technical input and peer review for National Fire Protection Association (NFPA) task group for “Firewise Construction” videotape series.
- 1996 - 2003 **National Wind Design Standards** – Participated on canvassing committees and assisted in development of commentaries:  
2003 - ANSI/SPRI ES-1 “Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.”  
1996 – 2001 - ANSI/SPRI RP-4-1997 “Wind Design Standard for Ballasted Single-Ply Roofing Systems.”
- 1994 - 1996 **Wind Research Project** – Served on Steering Committee for Roof Edge Metal Research at Texas Tech University in Lubbock, Texas.
- 1996 **NRLRC Mock Trial** – Invited to participate as expert witness in mock trial as part of National Roofing Legal Resource Center Seminar “Ways to Limit Contractor Liability” in Palm Springs, California.
- 1994 **Earthquake Damage** – Assistance to client on Southern California low-sloped and steep-sloped roof projects after Northridge Earthquake.
- 1993 - 2008 **Hurricane Damage** – Assessment of wind damages to roofs on island of Kauai, Hawaii, following Hurricane Iniki, City of Pensacola Florida following Hurricane Ivan and City of Houston Texas following Hurricane Ike.