Fire Cause Analysis
A DIVISION OF IFT INC.

CURRICULUM VITAE

JOSEPH B. ZICHERMAN, Ph.D.[1]

Summary:

Dr. Zicherman is a scientist specializing in the fire performance of materials and systems as well as selected problem areas relating to polymers, paper and wood.

The emphasis in his work has been on the performance of complex systems such as buildings and their furnishings [including high rise and other large, fixed structures] and rail transportation vehicles. His work interests include causes and the growth and spread of fires as well as the performance of materials and sub-systems and systems as part of such projects. Codes and standards are also an area of his specialization.

His clients include research organizations, government agencies, manufacturing companies and trade associations. A significant focus of Dr. Zicherman's work has also included forensic work for attorneys and clients associated with the insurance industry.

Academic Background:

Ph.D. - University of California, Berkeley, CA (1978)
Major: Wood Science and Technology
Minor: Polymeric Materials/Fire Performance of Materials

MS. - North Carolina State University, (1970)
Major: Wood and Paper Science
Minors: Polymeric Materials/Experimental Statistics

BS. - SUNY College of Forestry (1967)
Major: Wood Products Engineering

Professional Experience:

April 1977 - present: Principal, IFT Inc./Fire Cause Analysis. IFT Inc./Fire Cause Analysis is an interdisciplinary consulting group focusing on the fire performance of buildings and consumer products. Areas of Dr. Zicherman's expertise include fire

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science and fire investigation, polymers and paper technology (including aging, coatings and adhesives) with an emphasis on polymer based building products, construction technology and rail passenger vehicle fire performance and Wildland/urban interface fire problems.

January, 1981-March 1981; January, 1983- June, 1986: University of California, Berkeley. College of Natural Resources, Forest Products Laboratory. Lecturer (1/81-3/81 and 1/83-3/83) in Wood Physics. Invited position teaching the graduate course in Wood Physics. Also, Associate Research Wood Technologist dealing with building products technology and the fire performance of wood.

1979-1982: Assistant Research Engineer; U.C. Berkeley, College of Engineering, Civil Engineering Dept., Fire Test Facility. Research position involving fire performance evaluation and research in products and building technology.

1973-1978: Assistant Specialist for coatings and adhesives technology U.C. Berkeley - Forest Products Laboratory. Basic and applied research in whole and composite wood products and polymers.

1970-1973: Chemist and Section Head-D. P. Joyce Coatings and Resins Research Center, Glidden Coatings and Resins Group, Division SCM Corp., Strongsville, Ohio. Assignments dealt with manufactured housing, coatings systems including radiation cured and 100% solids finishing systems for a variety of substrates. Section head of the powder coatings group with responsibility for both basic and developmental research in that area. Designed and supervised pilot manufacturing operations and specifications for production facility. Interfaced with equipment and raw materials suppliers as well as customers and licensees. Traveled in Europe doing technology assessment in polymers, coatings and plastics areas.

1967-1970: Research Assistant-North Carolina State University: Conducted research under USDA Forest Service Grant on wood coatings, ash content and characteristics of wood surfaces. Dr. Zicherman also acted as a graduate instructor in the above areas.

Significant Activities:

Continuing activities related to Passenger Rail fire safety issues including conducting Fire Safety Analyses of both powered and un-powered rail passenger vehicles as well as maintenance and operating buildings

Principal Investigator for the office of the California State Fire Marshal conducting an evaluation of proposed technologies to mitigate urban/ wildland interface fire problems. Project resulted in two reports.

Presentation to GAO panel at National Academy of Sciences, Washington D.C., in August 2004 on Urban/Wildlife Fire problems.

Consultant to the Rhode Island District Attorney task group charged with the investigation of the fire incident at "The Station" nightclub in Warwick RI. Provided testimony to the Statewide Grand Jury investigating the incident - 2005.

Co-authored text section on Post Fire Analysis ["Failure Analysis and Analytical Tools"] in the "Users Manual for NFPA 921 published jointly by the NFPA and the IAAI - 2003

Member - Participant – NFPA Research Foundation Phase I and II programs on Sublethal Exposure to Fire Smoke. Program addressed ISO initiatives related to "Fire Threat to People and the Environment"

Co-author in HUD funded project "Fire Performance of Archaic Building Materials." Developed a rating system implemented in all of the model US building codes, by Federal agencies and included in various NFPA codes to assess the anticipated fire performance of existing building materials in the field – originally completed 1982; Managed revision and updating program – 1999 under contract to the National Institute of Building Sciences [NIBS], Washington, D.C.

Editor and Contributing Author – Council on Tall Buildings in Urban Habitats (Lehigh University) High Rise Fire Safety Monograph - 1992

Fire-safety contributor to preparation of "Building Safety Assessment Guidebook" and "Building Safety Enhancement Guidebook" by the Council on Tall Buildings in Urban Habitat of Lehigh University. The workbook format of these documents was developed to assist high rise building owners and managers in assessing fire safety levels at their properties following the 9/11 World Trade Center incident - 2001-2002.

Participation in the FRA funded program "Experimental application of fire hazard analysis for US Passenger Train Systems" as Peer Review Committee member and consultant to the Center for Fire Research, NIST – 1996-2000

Consultant to the Volpe Center, US-DOT, Cambridge, Mass. on matters related to fire safety of rail passenger vehicles for the Federal Railway Administration.

Participation in investigations/forensic evaluations of high rise fires including those at the MGM Grand Hotel - Las Vegas, The First Interstate Bank Building fire - Los Angeles, The Cathedral Hill Hotel Fire - San Francisco, the Dupont Plaza Hotel Fire - San Juan Puerto Rico, the One Meridian Plaza fire, Philadelphia.

Activities related to wild land/ urban interface fire problems including acting as a consultant to the City of Oakland conducting post fire assessments following the Oakland Hills conflagration. Significant work in this technical area has also included co-authorship of a report for the East Bay Regional Park District on wild land/urban interface fire mitigation and work on other wild land fires in Southern California and the Rocky mountains.

Development projects related to exterior durable fire retardants for wood and wild land substrates.

Initial development with the 3M Corporation Technical Ceramics Group of AUTO CAD capable Product selection software systems for use in fire protection features design and specification for construction.

Participation in investigations/forensic evaluations of major industrial facility fires including those at the Stapleton Airport fuel facility - Denver, CO, Mountain Cold Storage - Tacoma, WA., Brewster Heights packing facility, Brewster WA., Dole Foods Facility, Yuma, AZ., Japanese National Telescope Facility, Mauna Kea, HI., Safeway Facility, Richmond, CA., major smoke detector malfunction case, Davenport, IA; KFX Synfuel facility – Gillette Wy., Rombauer Winery Fire, Calisotga, Ca., Tri-City Foods Fire, Washington .

Participation in maritime and aircraft related fires including the DTB - 40 fire Honolulu and the Ricky Nelson Plane Crash., discharge by oxygen cylinders in transit-Continental Airlines/Federal Express

Design Consultant addressing insulation system configuration and materials utilized at the Keck Observatory, Mauna Kea, HI. Client: joint UC Berkeley/Cal Tech design team.

Principal investigator [1995 through present] - Post Earthquake Fire Investigation Program - Sponsor – FEMA as grantor to the Natural Hazards Research Center, University of Colorado, Boulder, CO.

Chairman of ASTM E.5 Subcommittee E.5.17 [1996 thru 2002] addressing fire test standard development for transportation applications. During tenure was

responsible for the successful development of a state of the art Fire Hazard Assessment Methodology for Rail Transportation Vehicles [ASTM E-2061–03] as part of ASTM Committee work approved by ASTM E.05 Main Committee in December 1999.

Task group chairman charged with evaluation of the enlargement of scope of the vehicles section of the NFPA 130 [rail passenger and fixed Guideway vehicle] Standard to encompass inter city and commuter rail vehicles in conjunction with the American Public Transit Association and the Federal Railway Administration.

Authorship of initial manuals reviewed by the model code agencies developed to detail safe means to install plastic pipe, tube and conduit in fire rated construction for trade associations and corporate clients in industry.

Part of BCMC and ICBO East Bay Chapter working groups that developed the initial building code language governing the installation of plastic pipe tube and conduit.

Dispute resolution contribution related to combustibility issue to the Los Angeles Metro Blue Line Light Rail Project vehicles. Also work on "Combustible Contents" Issues related to the LAMTA Green Line – 1996-1999.

Development of techniques for the application of Rate of Heat Release technology for rail passenger projects in San Juan, PR and Los Angeles, Ca. and Emeryville, CA.

Development of techniques for the application of Rate of Heat Release technology for building applications including atrium applications consistent with requirements of the Uniform Fire Code including the Chiron Headquarters in Emeryville, Ca.

Consultant to US Consumer Products Safety Commission for subjects relating to O-ring sprinkler design issues – 2001.

Principal Investigator – US DOT-FRA mandated Fire Hazard Assessments prepared for commuter rail systems in Chicago, Los Angeles and San Francisco – 2001.

Principal Investigator – US DOT-FRA mandated Fire Hazard Assessments prepared for builders of rail passenger vehicles including commuter cars and engines for push-pull applications – 2001-2003

Project Manager – Conducted Performance Based Hazard Assessment [on a Pro-Bono basis] for the University of California NCAA Champion Intercollegiate Rowing Program to address concerns associated with construction of a new boat house in a remote area – 2002 [*Go Cal Bears!!!!!!*].

Service To Professional Societies-Technical Community/Memberships:

University of California (Berkeley), Forest Products Laboratory –Technical Advisory Board; member since 1999, Chairman 2000-2001.

United States Consumer Products Safety Commission – SGE (special government employee) dealing on voluntary basis with problems involving fire safety and consumer products at the request of the CPSC technical staff 1992 thru 1996 focusing on furniture related flammability issues. Consultant to CPSC on recall issues regarding problems with o-ring based sprinkler systems 2000-2001.

Editor & Co-Chairman of Committee 8A--Fire; Council on Tall Buildings and Urban Habitat, Lehigh University, Bethlehem, PA

Society of Fire Protection Engineers (SFPE) - Member

American Society for Testing Materials (ASTM) - Member
- Member Committee-E-06-Performance of Buildings.
- Member Committee-E-05-Fire Test Standards.
  - Chairman Subcommittee-E-5.17 Transportation thru 2002
  - Member Subcommittees E-5.11, E-5.15

American Academy of Forensic Sciences – Member through 2000

American Public Transit Association – Passenger Rail Equipment Safety Standards (APTA-PRESS) System Safety Committee participant.

American Society of Heating, Refrigerating and Air-Conditioning Engineers, (ASHRAE) - Associate Member, since 2004.

Journal of the International Association of Arson Investigators - Editorial Board Member, reviewer, contributor

National Fire Protection Association - General Member
- Member of NFPA- 130 Committee on Rail Rapid Transit Fire Safety Issues
- Task Group Member - NFPA Fire Test Committee - degrees of combustibility.
- Member – Research Advisory Council on Post Fire Analysis of the National Fire Protection Association Research Foundation 2000-2002.

National Institute of Building Sciences (former member)
- Consultative Council Member

Insulation Task Force
Common Building Code Format Committee

National Institute of Standards and Technology (NIST) - Center For Fire Research
Member of Peer Review Committee Study Group related to Fire Safety Regulations of Passenger Trains - FRA sponsored group (1995-1996)

International Conference of Building Officials (ICBO) – Professional Member and Member -Fire and Life Safety and Fire Risk Assessment Committees Advisory Panels (1982-1991)

Building Officials & Code Administrators Int'l Inc. (BOCA)- Member

Southern Building Code Congress International (SBCCI)- Member

Board for the Coordination of the Model Codes (BCMC)
Member-Task Group on Non-Combustibility and Degrees of Combustibility (and associated groups)-current-Task Group and Thru Penetrations and Fire Stopping - 1982-86

International Association of Plumbing & Mechanical Officials (IAPMO) - Member

Society of Plastics Engineers (SPE) – Member (1980-2000)

Forest Products Society - Trustee, Northern California Section - 1982-1986 and 1998-2002; member through 2002.

Society For Wood Science and Technology – Member through 2002.

Sigma Xi – Scientific Honorary – 1978-2000

East Bay Regional Park District - Member - Fire Prevention Committee

International Association of Arson Investigators - Member

California Conference of Arson Investigators - Member

Grant And Publication Reviewer:

United States Dept. of Agriculture Competitive Grants Program - grant reviewer

Journal of Fire & Materials - reviewer

Fire Technology - reviewer

NFPA Fire Journal – reviewer

Journal of the International Association of Arson Investigators - Editorial board member and reviewer

Forest Products Journal - reviewer

Journal of Coatings Technology - reviewer

Wood and Fiber Science - reviewer

USDA Forest Products Laboratory, University of Wisconsin - grant reviewer

Chemical Engineering Magazine - reviewer

Publications, Reports:

"Forensic Evaluation of Textile Flammability." 2006, with M.M. Hirschler and P.Y. Umino. Submitted for publication to the Journal of Forensic Sciences.

"Is Pyrolysis Dead?", 2006, with Peter Lynch., Fire & Arson Investigator. Vol. 56, No. 3.

"Is there a time bomb in the sofa?" 2005, with Robin Foster. Trial: Journal of the Association of Trial Lawyers of America. Vol. 41, No. 12.

"Fire at the Urban Wildland Interface: Performance of California Homes." September 2004. California Department of Forestry and Fire Protection.

"Fire at the Urban Wildland Interface; Cost Benefit Evaluation." September 2004. California Department of Forestry and Fire Protection.

"Plastic Pipe and Fire Safety", 2004. Fire Protection Engineering, Spring Vol. 22. Society of Fire Protection Engineers, Cleveland OH.

"Unconventional Emergency Evacuation Measures and Procedures" 2003. NFPA Journal, November/December.

"Plastic Pipe and Fire Safety", 2003. PM Engineers, October 2003. Troy, MI.

"Fire Performance of Foam Plastic Building Insulations", 2003, Journal of Architectural Engineering, September 2003.

"Fire Performance of Electrical Insulating Materials Used in Fluorescent Lighting Fixtures", 2003. Journal of the Int'l Assoc of Arson Investigators. Vol. 53 No 3. (Also published in CCAI's "The Fire-Arson Investigator Newsletter", August 2004.

"Tall Building Fire Safety–Post 9/11", 2003. CTBUA Review, Jan-March 2003, Council on Tall Buildings in an Urban Habitat.

"Polymer Products in Rail and Bus Applications" 2003. In Proceedings - Fire & Materials 2003, PP 259. San Francisco, CA.

"*Building Safety Assessment Guidebook*" and "*Building Safety Enhancement Guidebook,*" [contributor], 2002. Post 9/11 workbooks developed by the Council on Tall Buildings in Urban Habitat, CTBUH, Lehigh University, Lehigh, Pa.

Technical Note: The Fire Performance of Electrical Insulating Materials Used in Fluorescent Lighting Fixtures. Fire and Materials, 25, 209-213, 2001.

Assistance Needed on Sprinkler Project [relating to Central Sprinkler Company glass bulb sprinkler head performance], 2001. Letter to the Editor – Fire and Arson Investigator, 51(4) pp 6-7. With F. Hsu. (Note: Same letter appeared in the July 2001 issue of "Fire-Arson Investigator", published by the California Conference of Arson Investigators).

Paper: Permanence, 2001. in Encyclopedia of Materials: Science and Technology, F.C. Beal Editor, PP 6678-6682, Elsevier Press, London, England. With R.A. Kundrot

Contributions to Final Environmental Impact Report for CPVC Pipe Use in Potable Water Piping in Residential Buildings, 1998. California Department of Housing and Community Development, State Clearinghouse Number: 970820040. See Section 5. "Hazards in Fire", pp. 69. [see also State of California Expanded use of Plastic Pipe EIR – Appendix I of HCD-227

Recommendations for Revising the Fire Safety Performance Requirements in Federal Railway Administration Notice of Proposed Rulemaking (NPRM) for Passenger Equipment, September 23, 1997. Prepared for the Volpe National Transportation systems Center, USDOT, 9.98.

Application of Heat Release Technology to the Design of Rail Rapid Transit Vehicles, June, 1998. In Proceedings – Fire Risk and Hazard Assessment Research Application Symposium, National Fire Protection Research Foundation, SF, Cal.

"Finish Ratings of Gypsum Wallboards", 1998. Fire Technology, V. 34, No4 (pp356).

Guest Editorial, 1997. Jour Int'l Association of Arson Investigators. V. 48, No. 2 (pp 6).

Letter to the Editor, Re: Combustion Toxicity data Interpretation, Fire & Materials, Vol. 16. (1993).

"Fire Safety of PVC Raceways and The Model Building Codes", Carlon Electrical Products, Cleveland, Ohio, First Edition, 1992, second edition, 1993.

"Fire Performance of Fire-Retardant Wood Fiberboard Ceiling Tile", 1992 - Fire & Materials, Vol 16 (Co-authored by D. Allard, Ph.D.)

"PC-based Product-selection Systems to Enhance Fire Safety in Construction", Fire and Materials, Vol. 16, 53-60, 1992.

"Is PVC Piping Firesafe?", Building Standards. September-October, 1992. PP. 12-17.

Editor, "Fire Safety in Tall Buildings", 1992. McGraw-Hill, Inc, NYC, NY.

Forum - Issues in Science and Technology, Volume VIII Number 2, Winter 1991-92. "National programs in science and technology".

"Enhancement of Fire Safety in Buildings: Microcomputer Systems for Selecting and Specifying Products". in proc. of Sixteenth International Conference on Fire Safety, Millbrae, CA, January 17, 1991. By Joseph Zicherman, David Frey and Lon Katz, IFT; Richard Licht, Kristen Jensen and Tony Schommer, 3M Company.

"Plastic Pipe in Fire Resistive Construction", The Plastic Pipe and Fittings Association, Glen Ellen, Illinois, first edition, 1985, second edition, 1991.

"Performance of Plastic Plumbing and Electrical Products in Fire Resistive Assemblies", 1992. In Fire Hazard and Fire Risk Assessment, ASTM STP 1150, PP 66-83. Presented at the ASTM Symposium on Fire Hazard and Fire Risk Assessment. San Antonio, TX, December 3, 1990.

"Fire Initiation Propensities of City of Sacramento Compost Materials Used in

Landfill Operations". Prepared for City of Sacramento Department of Public Works Solid Waste Division. December 3, 1990.

"Is PVC Piping Firesafe?", 1990. NFPA Fire Journal, Nov/Dec, 1990 (Vol 84, No. 6).

"Engineering Report on Fire Resistive Floor-ceiling Assemblies with Carlon Tubing and Conduit", 4/90. Submitted to the National Evaluation Service of CABO on behalf of Carlon, Cleveland, Ohio.

"Fire and Wood" - 1989; in: Concise Encyclopedia of Wood & Wood - Based Materials, Editor - Arno P. Schniewind, Pergamon Press, New York.

"Compartment Tests of Polyurethane Foam Seating Assemblies", December 1989-Fire and Arson Investigator (Vol 40, #2) (Co-Authored by D. Allard, Ph.D.)

"When to Call the Scientific Expert". The Function of Experts in Fire/Failure Related Cases-Newsletter of Trial Techniques Committee, Tort and Insurance Practice Section, American Bar Association - Winter, 1988.

Book review: "Plywood & Adhesive Technology" by Terry Seller, Jr. - 1987. Wood and Fiber Science, Jan. 1988 (Vol. 20, No.1).

"Fire Performance of Plastic Pipe, Tube and Conduit" - In Proceedings: Fire Retardant Chemicals Association Fall Conference, "Fire Safety Progress in Regulations, Technology and New Products." October 18-21, 1987, Monterey, CA.

"Compartment Tests of Polyurethane Foam Seating Assemblies", May 1988 - Fire Technology. (Vol. 24, No. 2) (Co-authored by D. Allard, Ph.D.)

"Wood and Fire", 1986; in: ENCYCLOPEDIA OF MATERIALS SCIENCE AND ENGINEERING, M.G. Bever, editor-in-chief, Pergamon Press, New York, (Pages 5377-5382).

"Are Less Sensitive Detectors Available?", 1986. Fire Journal, (8,5 [11]) - Letter To The Editor.

PLASTIC PIPE IN FIRE RESISTIVE CONSTRUCTION, 1st Edition, 1985. Installation manual prepared for the Plastic Pipe and Fittings Association, Glen Ellyn, IL. (2nd edition 1990.)

UNIFORM CODE FOR BUILDING CONSERVATION, 1985. Guideline U.C.B.C. -2 - Fire Ratings of Archaic Building materials, ICBO, Whittier, CA.

CODE FOR EXISTING BUILDINGS, 1984 (1st Ed'n). BOCA Int'l, Country Club Hills, Ill. (Includes "A Guideline for Assessing the Fire Performance of Archaic Building Materials" cited above.)

“Plastic Pipe and Fire Safety”, 1985. Report to the Plastic Pipe and Fittings Assoc., Glen Ellen, Ill. [see also California EIR – 1998 – Appendix I of HCD-227].

"Report of the Blue Ribbon Fire Prevention Committee for the East Bay Hill Area Urban-Wild land Interface Zone", East Bay Regional Park District, Oakland, California, February, 1982

Review of Proceedings: 5th International Conference in Organic Coatings Science and Technology", ed. by G.D. Parfitt and A. V. Patsis. Journal Coatings Technology, 1982. 54 (686) 72.

"Fire Testing and Performance of Small Particleboard Panels", 1981. Journal of Fire and Flammability, 13 (240-249) (with R. B. Williamson).

"Microstructure of Wood Char: Part II-Fire Retardant Treated Wood", 1981, Wood Science and Technology, (19-34) (with R. B. Williamson).

"Microstructure of Wood Char: Part I - Whole Wood", 1981. Wood Science and Technology, 15 (237-249) (with R. B. Williamson).

"Fire Endurance of a Particleboard Decked Floor/Ceiling Assembly", 1981. Forest Products Journal, 31 (1) 24.

"A Guideline for Assessing Fire Related Performance of Archaic Construction Materials and Assemblies", Aug. 1979. A Report to the National Institute of Building Sciences, Washington, D. C. (with R.B.Williamson, et. al.).

"Cellulose Based Insulations Studied", San Francisco Examiner, 7/23/78 and 7/30/78 (with F. Fisher).

"Fire Protection Problems Associated with Cellulose Based Insulation Products", Society of Fire Protection Engineers, Technology Report 787, Boston, MA, 1978 (with F. Fisher).

"A Study of Wood Morphology and Microstructure in Relation to its Behavior in Fire Exposure", Ph.D. Dissertation, U. C. Berkeley, 1978. (Available from University Micro films, Ann Arbor, Michigan.)

"SEM X-ray Analysis of Pentachlorophenol in Treated Wood", Wood and Fiber, 7 (2) 110, 1976.

"Urethane Systems for Composite Products", Forest Products Journal, 25 (6) 21, 1975

"Instrumental Approaches to Powder Coatings Characterization", J. Paint Technology, 46 (591), 1974 (with R. M. Holsworth).

"Finishing Southern Yellow Pine", Contributions to Chapter 24, Vol. II of Utilization of the Southern Pines, Editor: P. Koch, Agricultural Handbook No. 420, U.S.D.A. Forest Service, 1971.

"Recycled Paper; Does Everyone Know It's Here?" The Clevelander, 3/72. (Published four times a year by the Greater Cleveland Growth Association.)

"Design of Resin Systems for Powder Coatings" American Paint Journal, 5/1/72. (Also available in reprint form SME, Detroit Michigan.)

"Scanning Electron Microscopy of Coatings on Wood", J. Paint Technology, 44 (570), 1971 (with R. J. Thomas).

"Distribution of Loblolly Pine Ash Residue", TAPPI, 54 (10) 1727, 1971 (with R. J. Thomas).

"Painting of Southern Pine", Forest Products Journal, 19 (4), 1969.

University Of California Reports:

"Polyurethane Adhesives for Hardboard: Review of Literature and Direction for Research". Progress Report No. 1, December 1973. U.C. Forest Prod. Lab - Tech. Report No. 35.01.119 (with B. Collett).

"Polyurethane Adhesives for Hardboard: Preliminary Evaluation and Testing of Candidate Adhesive Systems". Progress Report No. 2, May 1974. U.C. Forest Prod LabTech. Report No. 35.01.119.

"Fire Retardancy of Composite Wood Products: Polybor Dicyandiamide-Melamine Resin System as a Fire Retardant in Flakeboard". Final Report September, 1974. U.C. Forest Prod Lab – Tech. Report No. 35.01.135 (with Tinh Nguyen and K.T. Wu).

"Research in Fire Retardance of Flakeboard Products", Progress Report 1, 2 and 3. (December 1974, February 1975, March 1975) U.C. Forest Prod. Lab - Tech. Report No. 35.01.135.

"Microstructural Examinations of Non-Conventionally Bonded Wood", Internal Report No. 36.01.93. December, 1975. U.C. Forest Products Lab.

"A Study of Wood Morphology and Microstructure in Relation to its Behavior in Fire Exposure", April, 1978. Forest Products Laboratory Report, #FRG 7814, University of California, Berkeley.

" Full-Scale Fire Tests of BART (Bay Area Rapid Transit) Materials, 3/79. ES7578. Service-to-Industry Report No. 793, Fire Test Lab., U.C. Berkeley. Prepared for the Calif. Public Utilities. Commission. (with R. B. Williamson and F. Fisher).

"U.L. 790 Class-B Roof Tests of Redwood Decks", July, 1980. Fire Test Lab, University of California, Service-to-Industry Report No. 81-6.

Presentations:

"Forensic Evaluation of Fabric Flammability." 2006, with M.M. Hirschler and P.Y. Umino. Presentation to the 17th Annual Conference on Fire Retardants, Stamford, Connecticut, 3/06.

Presentation to GAO panel at National Academy of Sciences, Washington D.C., in August 2004 on Urban/Wildlife Fire problems.

Presentation to the Technical Compliance Unit of New York City's Department of Buildings, June 24, 2004 on Plastic Pipe, Fire Safety and the International Building Code.

Experimental study of materials exposed to electrical resistance heating as a potential cause of fire, January 2001. Fire and Materials 2001 Conference, San Francisco. With Kevin Brown and Frank Hsu.

Update on Codes, Standards and Regulations Affecting Fire Performance of Passenger Rail Vehicles, May, 2000. Rail Transportation Section Meeting, NPFA Annual Session, Denver, CO.

Use of Heat Release Information in the Design and Regulation of Rail Passenger Vehicles, December, 1999. ASTM E.05 Research Review, New Orleans, La.

Plastic Pipe in Fire Resistive Construction, Sept 1999. Continuing Education presentation to the International Code Consortium membership meeting St. Louis Mo.

Fire Risk Assessment for Rail Passenger Vehicles, Oct 1999. APTA-Press (American Public Transit Assoc.–Passenger Rail Equipment Standards) Meeting, Wilmington, DE.

Application of Heat Release Technology to the Design of Rail Rapid Transit Vehicles, June, 1997. Fire Risk and Hazard Assessment Research Application Symposium, National Fire Protection Research Foundation, SF, Cal.

"Research on the Use of Polymer Foam Insulation in Construction". Soc. of Fire Protection Engineers (SFPE) Northern CA-NV Section meeting, Berkeley,CA 10/17/97.

"Shipboard Fire! A discussion of Fire Cause and Origin in the Maritime Context with Case Studies". International Association of Defense Counsel (IADC) meeting, Pebble Beach, CA 2/97 (with D. Perkins, CFI).
"Fire Safety Issues Associated with Spray Polyurethane Foam". Society of Plastics Industries - Spray Polyurethane Foam Division meeting, Anaheim, CA 2/97.

"Rail Rapid Transit Vehicle Fire Safety Design Issues". Society of Fire Protection Engineers, N. Calif. Chapter meeting, Berkeley, CA 9/95.

"Jack London's Wolf House Fire". American Academy of Forensic Sciences, Nashville, Tenn, 2/96, with Robert N. Anderson, Ph.D. et al.

"Fire Performance of High Rise Building" presented to the Arizona Structural Engineers Assoc. (ASEA), Phoenix, AZ 1/96.

Guest Instructor: Fire Science Fundamentals and Fire Investigation, Arizona Conference of Arson Investigator's Seminar, Phoenix, AZ 7/95.

"Assessing the Fire Performance of Rail Passenger Vehicles-A Changing Technology". Presented at the NFPA & Rail Transportation Systems Mtg, Denver, CO, May, 1995.

"Fire Performance of Rail Transit Passenger Vehicles". Presented at the Annual NFPA & Rail Transportation Systems Meeting, San Francisco, CA - May, 1994.

"Performance of Structural Systems and Building Sub-Systems to Threats Posed by Fire and Smoke". Presented to the Structural Engineers Association of Oregon, 11/94

Guest Instructor: Teaching Fire Science Fundamentals with State Fire Marshal Personnel. Arson 2A Fire Course, Napa, CA. Nov. 1994.

Two day seminar presented to the Santa Clara County Arson Task Force on January 4 & 5, 1993. Topic: "Advanced Concepts in Fire Investigation".

Wood Building Research Center of the University of California Forest Products Laboratory, Emeryville, CA; Invited speaker-Topic: "Fire Performance of Wood". May 4, 1992.

Guest Instructor: Advanced Fire Science Analysis Seminar, [IAAI] - Boise, Idaho; August 14, 1992. International Association of Arson Investigators, Inc. Topic: "Recreating the Fire Scene Through Modeling & Animation".

"Enhancement of Fire Safety in Buildings: Microcomputer Systems for Selecting and Specifying Products". Presented at the Sixteenth International Conference on Fire Safety, Millbrae, CA, 1/17/91. By Joseph Zicherman, David Frey and Lou Katz, IFT; Richard Licht, Kristen Jensen and Tony Schommer, 3M Company.

"Cost Benefit Studies of PVC Pipe Tube and Conduit" Presented at the CSI-Construction Specifics Institute - Annual Meeting, San Diego, CA July, 1990

"Fire Performance of Plastic Pipe, Tube & Conduit" - presented to the Fire Retardant Chemicals Association - Fall Technical Conference, 10/18/87 - Monterey, CA.

"Fire Performance of Contemporary Building Products and Furnishings", East Bay Arson Round Table - CCAI, Berkeley, CA, 10/15/87.

"Fire Performance of Electric Raceways"-Testimony presented to Seattle Electrical Code Adoption Hearing, concerning adoption of the 1987 National Electrical Code, Seattle, WA. 12/87.

"Performance of Plastic Plumbing and Electrical Products in Fire Resistive Assemblies". Prepared for presentation at the ASTM Symposium on Fire Hazard and Fire Risk Assessment. San Antonio, TX, 12/3/90.

"Combining of Modeling, Computer Graphics and Timeline/Witness Data for Consultants": ASTM Committee E.5 Forensic Seminar, San Francisco, CA, 6/90.

"Forensic Fire Investigations"-presented to the East Bay Chapter of ICBO-6/89, Danville, CA.

"Value and Utilization of Experts in Subrogation" - presented to Lawyers Subrogation Seminar hosted by Bolling, Walter & Gawthrop - 6/89 - Sacramento, CA.

"Condominium Construction Defects" - presented to the Mount Diablo Property Association monthly meeting - 3/89.

"What Every Structural Engineer Needs to Know About Fire Protection" - Presented to Structural Engineers Association of N. California (SEAONC), 11/88,San Francisco CA.

"Fire Performance of Plastic Pipe, Tube & Conduit" - presented to the Fire Retardant Chemicals Association - Fall Technical Conference, 10/18/87 - Monterey, CA.

"Fire Performance of Contemporary Building Products and Furnishings", East Bay Arson Round Table - CCAI, Berkeley, CA, 10/15/87.

Comments on plumbing revisions prepared for the Chicago Building Code. Testimony delivered to the Building Code Revision Panel, Chicago, IL. 9/86.

"Fire Hazards of Non-metallic Electric Raceway". Testimony presented to the Sacramento Toxic Hazards Commission, 12/86.

"Fire Performance of Plastic Pipe - An Update", presented to the Arizona State Chapter Meeting of ICBO, Phoenix, AZ, 5/18/85.

Research Society Meeting in St. Louis, MO, June 1984. (Presented by B.W. Gammon, co-authors - A.P. Schniewind and R. White).

"Materials Properties & Fire Investigation" presented to the Fire Investigation Section, Santa Clara Fire Chiefs Association on 10/6/83.

"Use of Fire Performance and Fire Test Data in Fire Investigation", presented to the San Mateo County Fire Investigation Unit, Millbrae, CA, 5/26/85.

"Plastic Pipe & Fire Safety; The Model Building Codes, Fire Test Work & a Historical Perspective". Presented to the ANSI - A-40 Committee, Boston, MA, 10/85.

"Modeling Load-Bearing Stud Wall Fire Endurance" presented to the Fire Protection Research Society Meeting in St. Louis, MO, June-1984. (Presented by B.W. Gammon, co-authors - A.P. Schniewind and R. White).

Moderator - Panel on Manufactured Housing Technology, 6/82. Meeting, Northern California Section - Forest Products Research Society, San Mateo, CA.

Expert Witness - California Legislature Assembly Committee on Governmental Organization, 2/11/81. Testimony on effects of contemporary building materials and contents on high-rise fire safety.

"Research Efforts in Housing Rehabilitation" Forest Product Research Society, Northern California Section Meeting - Fresno, CA 10/80.

"Full Scale Fire Tests of BART Vehicle Materials". Presentation to the N. California section of Society of Fire Protection Engineers,1/80(with R.B.Williamson & F. Fisher).

Expert Witness - California State Commission for Housing and Community Development, 10/20/80. Testimony related to fire performance of plastic pipe for residential and commercial structures.

"Fire Related Problems with Contemporary Residential Building Materials" at the California Fire Chiefs Assoc. of Fire Prev. Officers Mtg. 2/23/79.

"Influence of Construction Materials on the BART Fire of January, 1979" presented to the Santa Clara County Chapter of the ASCE, Spring 1979.

"Wood/Char Microstructure in Treated and Untreated Wood." National Meeting Forest Products Research Society, 7/79.

"Fire Performance of Contemporary Plastic Materials". Presentation to the Products Liability Committee of the San Francisco Bar Association, 9/79.

"Fire Protection Problems Associated with Cellulose Insulation Products", 1978. Society of Fire Protection Eng. - Fire Protection Engineering Seminar, Anaheim, California, 5/78.

"Fire Performance of Wood" at ASTM D-7 Committee Meeting on Wood Products, Richmond, California, 10/77 (with R. B. Williamson).

"Instrumental Approaches to Powder Coatings Characterization" at the American Chemical Society National Meeting, Chicago, Illinois, 8/73.

"Powder Coatings for the Container Industry" at the National Metal Decorators Association Convention, Miami Beach, Florida, 10/73.

"Design of Resin Systems for Powder Coatings" at the SME Powder Coatings Conference, Cincinnati, Ohio 3/72.

"Polymer Resins for Powder Coating" at the University of Southern Mississippi Polymer Conference Series, Biloxi, Mississippi, 7/72.

"Painting Southern Pine" presented at the Conference on Southern Pine Utilization, Alexandria, Louisiana, 11/68.

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