

CARL A. BEELS, M.S.
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EXPERIENCE

(Over 30 Years Human Factors and Safety)

<i>Human Factors Engineering</i>	<i>Safety and Hazard Analysis</i>
<i>Perception, Attention and Response</i>	<i>Slips, Trips and Falls</i>
<i>Lighting and Visibility</i>	<i>Codes and Standards Analysis</i>
<i>Effectiveness of Warnings</i>	<i>ADA Compliance Analysis</i>
<i>Product/Equipment Usability</i>	<i>Incident Site Inspection</i>
<i>Witness Memory and Reliability</i>	<i>Incident Site Photography/Videography</i>

- Certified Accessibility Inspector/Plans Examiner, #1027959; International Code Council
 - Testified in over 700 legal proceedings (Deposition, Arbitration, Mediation, Trial)
 - Performed well over 1000 code compliance analyses
 - Consulted on well over 3000 personal injury incidents
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EDUCATION

National University, San Diego, CA

- M.S., Safety Management and Engineering Technology, Distinction, GPA 4.0, 1993

California State University, Northridge, CA

- Completed all post-graduate courses, except thesis, toward M.A. in Human Factors/Applied Experimental Psychology, GPA 3.5, ~1981-1985

University of California, Santa Barbara, CA

- B.A., General Psychology (Emphasis on Perception), High Honors, GPA 3.7, 1980

Ventura College, Ventura

- Psychology and General Education, ~1974-1978

Specialized Training: Building Code Compliance Analysis

- Understanding and Interpreting the Uniform Building Code (ICBO)
 - Means of Egress (ICBO)
 - Means of Egress Video Series (ICBO)
 - Uniform Building Code Chapter 33, Exit Systems (NU)
 - Accessibility Inspector/Plans Examiner, 2014 Certification No. 1027959 (ICC)
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EMPLOYMENT

Company Name	Period	Position
Beels & Associates, Inc.	9/93 to Present	Owner/President
California Safety Associates.....	6/93 to 5/02.....	Associate
Hale Enterprises.....	9/93 to 12/95.....	Consultant
B-K Dynamics, Inc.	8/84 to 7/93.....	Branch Manager
Integrated Sciences Corp.	9/83 to 7/84.....	Staff Scientist

Owner/President, Beels & Associates, Inc., 9/93 to Present

Beels & Associates, Inc. provides analytical services to clients primarily having to do with accident investigations. Safety, accident reconstruction, and human factors engineering principles are applied to the analysis and evaluation of systems, equipment and environments. Specialty topics include: human performance (perception, cognition, user expectations, attention, behavior, anthropometry); walking surface design (layout, configuration, and slip resistance); parking lot safety (stall dimensions and arrangements, speed bumps, wheel stops, lighting); door, staircase, ladder and ramp measurement and evaluation; analysis of safety policies, practices and procedures; evaluation of compliance with codes, standards, and customs and practices; ADA compliance; lighting; product and equipment usability; safety evaluation/development of warnings, labels and instructions; automotive accident investigation, primarily evaluating human factors considerations including visibility, attention, perception and response; and incident site photography and videography.

Associate, California Safety Associates, Inc., 6/93 to 5/02

In support of accident investigations, collected and reviewed case material, conducted site inspections, conducted interviews and performed tests (lighting, noise, coefficient of friction, human performance and behavior), and performed accident reconstructions. Provided technical expertise regarding relevant human factors/safety issues in preparation for deposition and trial testimony. Formulated opinions regarding human factors/safety issues and injury causation. Testified in deposition, arbitration, and trial. Specialized in slips, trips, falls and accidents involving consumer and industrial products and equipment.

Consultant, Hale Enterprises, 9/93 to 12/95

For National Steel and Shipbuilding Company's (NASSCO) Sealift Conversion and New Construction programs, applied human factors techniques to evaluate machinery spaces and ship control consoles of several container ships. Safety and human factors topics included warning/instruction design, ventilation, lighting, noise protection, access, work space, and control/display integration. Conducted on-board ship inspections, evaluated and developed warnings and instructions for equipment and facilities, reviewed technical drawings and specifications, identified human factors engineering design and safety problems, formulated solutions, and provided inputs and recommendations. For guidelines used U.S. Coast Guard regulations (46 CFR), American Bureau of Shipping (ABS) and Safety of Life at Sea (SOLAS) Rules, and ASTM F1166-88, "Standard Practice for Human Engineering Design Criteria for Marine Systems, Equipment, and Facilities," and ANSI Z535.4, "Product Safety Signs and Labels."

Branch Manager, B-K Dynamics, Inc., 8/84 to 7/93

Supervised and performed human engineering and safety analyses including human-computer interface design and evaluation, control-display design, warning/label/instruction development, workstation layout and environment analyses, task analysis, man/machine function analysis, dynamic simulation analysis, communication system analysis and design, procedures development, and test and evaluation. Employed state-of-the-art human engineering and system safety principles and methods as documented in MIL-STD-1472D, MIL-H-46855B, MIL-HDBK-763, ANSI/HFS 100-1988, and MIL-STD-882B. Developed experimental designs and test plans for evaluating system elements (C3, thermal imaging, CCTV, radar, sonar & target processors). For developmental tests of harbor surveillance systems, prepared test plans and supervised data collection and statistical analyses.

Staff Scientist, Integrated Sciences Corporation, 9/83 to 7/84

Conducted research, collected data and developed documentation on various Naval systems. Developed detailed Naval technical manuals in accordance with military standards. Generated reports which provided specific recommendations on: a) system manning requirements; b) training program development; c) system performance evaluation and experimental design; d) data collection and analysis.

PROFESSIONAL AFFILIATIONS

- **Forensic Expert Witness Association**, Past President, San Diego Chapter
 - **Human Factors and Ergonomics Society**, Past President, San Diego Chapter (Job Placement Program Chair), Technical Groups include: Safety, Test & Evaluation, Forensics and Consumer Products
 - **ASTM International**, Committee Member and Participant in development of various ASTM standards. Committees include: D21, Polishes; D21.06, Slip Resistance; E18, Sensory Evaluation; E30, Forensic Sciences; F-13, Pedestrian/Walkway Safety and Footwear; F13.9.1, Editorial and Terminology; F13.10, Traction; F13.40, Research; F13.50, Walkway Surfaces; F15, Consumer Products; F15.09, Home Playground Equipment; F15.22, Toy Safety; F15.29, Public Playground Equipment
 - **American Society of Safety Engineers**
 - **International Code Council**
 - **Illuminating Engineering Society of North America**
 - **National Safety Council**
 - **National Floor Safety Institute**
 - **National Fire Protection Association**
 - **Society of Automotive Engineers**
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PRESENTATIONS (partial list)

Forensic Expert Witness Association/SEAK

- Human Factors and Safety Expert Trial Preparation Tasks and Mock Trial Testimony, 2008

Forensic Expert Witness Association Seminar, San Diego Chapter

- Case Study: Human Factors and Safety Forensic Expert Evaluation and Testimony (2002)

North County San Diego Trial Lawyers Association

- Human Factors and Safety Expert Witness Trial Preparation (2002)

Human Factors and Ergonomics Society, San Diego Chapter

- Slip Resistance Measurement and Analytical Techniques for Use in Slip and Fall Accident Investigations (1997)
- Expert Witness Techniques (1996)
- Usefulness of On-Product Warnings (1995)
- Risk Perception of High Risk Sports (1994)
- Design and Development of an Operational Command, Control, and Communications Console Used in a Naval Surveillance System (1993)
