

Curriculum Vitae

Norman E. Groner

Profile

30 years experience solving design problems where people interface with social and technological systems. Applying behavioral science expertise to problems in cognitive systems analysis and decision-making, needs and heuristics analyses, contextual (field) inquiries, and usability, especially pertaining to fire safety and emergency management

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Education

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| Antioch College Yellow Springs, Ohio | B.S. | 1972 (Psychology) |
| University of Washington Seattle, Washington | M.S. | 1976 (Psychology) |
| | Ph.D. | 1979 (Major: Social Psychology) (Minor: Sociology of Organizations) |

Professional memberships

Human Factors and Ergonomics Association
ASIS, International
National Fire Protection Association (member *Life Safety Code/NFPA 5000* Fundamentals technical committee)
Member ASME A17 Task Group on Use of Elevators for Occupant Egress
International Association of Emergency Managers

Dissertation

Perceptions of Public Bureaucracy: Multidimensional Scaling of Eight Municipal Agencies

Professional Experience

- 2003-Current Associate Professor, Department of Protection Management, John Jay College of Criminal Justice, City University of New York
Director of Graduate Program in Protection Management.
Courses taught: Analytic Methods in Protection Management, Organizational Theory and Management, Problems in Public Administration, Security and Safety in the Built Environment, Emergency Preparedness and Response, Contemporary Issues in Fire Protection, and Analysis of Building and Fire Codes.
Principle Investigator for NIST grant on transfer of cognitive engineering theory and methods to building emergency problems, and an IBM/CUNY/NYU-Poly grant investigating situation awareness requirements for first responders.
- 2001-2002 Coordinator and co-director for the World Trade Center Evacuation Study Initiative. Organized and facilitated meetings, met with Federal agency representatives, wrote policy papers, research agenda and letter to Congress, wrote and sent emails to member soliciting input and updating activities, established supporting website (www.peopleandfire.com/wtcesi/)
- 1984-Current Independent consultancy in human and organizational factors of fire safety, emergency planning, cognitive systems engineering, and usability. Projects have included: designing interview method and analysis for NIST investigation of WTC attack building evacuations, analyses and proposed changes to software interfaces; assessment of a city's response during an earthquake disaster; design and teaching of seminars on fire emergency planning and board and care code requirements for associations, building managers, and fire service; curriculum planning and writing innovative instructional materials for U.S. Fire Academy college courses; data collection and analyses for survey of egress methods for persons with disabilities for U.S. Architectural and Transportation Barriers Compliance Board.
- 2000-2001 Usability Manager. Impresse Corporation. Tested interface with customers. Conducted contextual field inquiries. Generated usage scenarios and use cases. Devised and maintained database of usability issues. Organized and ran usability team meetings. Participated in design meeting. Maintained intranet usability subsite. Built and edited HTML rapid prototypes.
- 1995-2000 Visiting Scholar/Researcher, Department of Civil and Environmental Engineering, University of California, Berkeley.

- Developed “Scenario-Based Goal Decomposition” methodology for performance-based design and analysis of safety systems where humans play important roles in determining successful outcomes. Analyzed prevention and mitigation strategies for earthquake-related fire ignitions, funded by regional gas/electric utility.
- 1990-1994 Consultant, George Mason University. Worked on NIST-sponsored research grants. For four Federal agencies, collected and analyzed data on impact of fire safety requirements on board and care facilities; wrote guide to Life Safety Code requirements for board and care facilities. For GSA and FAA, conducted field usability evaluations of staging areas installed in Federal buildings to protect persons with disabilities; investigated human factors issues of using elevators to evacuate high-rise buildings and aviation control towers.
- 1983-1984 Senior Analyst, JRB Associates, McLean, Virginia. For OSHA, task manager for \$½ million study regulatory impact of revised Benzene standard; designed hazard recognition data base and sample entries; wrote systems safety curriculum materials for OSHA and U.S. Postal Service training institutes.
- 1983 Research Associate, University of Washington. On a NIST-sponsored contract, evaluated and made recommendations about fire emergency plans for residential occupancies in the National Parks.
- 1981-1982 Research Associate, University of Maryland. On a NIST-sponsored contract, wrote fire emergency planning manual for operators of board and care facilities.
- 1979-1981 Psychologist, National Bureau of Standards. Member of four-person team that developed the Fire Safety Evaluation System for Board and Care Facilities; received award for developing method to estimate the difficulty of evacuating board and care homes during fires (now Chapter 5 of ANSI/NFPA 101M where it is used to set required level of building safety). Investigated human behavior during multi-fatality board and care fires.

Publications

Groner, N. (in press) Predicting Critical Incidents. In Schwester, R. (ed.) *Handbook of Critical Incident Analysis*.

Groner, N. (2011) Can the Cognitive Engineering Approach Prevent “Normal Accidents”? How Design Might Improve Societal Resiliency to Critical Incidents. *Journal of Critical Incident Analysis*, 1(2). Retrieved from <http://jcia.aciajj.org/files/2011/04/Groner-3-18-11-1.pdf>.

Groner, N.E., Miller-Hooks, E. and Feng, Lei (2010) Prospects for the Design of Cognitive Systems that Manage the Movement of Large Crowds. In Peacock, R.D., Kuligowski, E.D., and Averill, J.D. *Pedestrian and Evacuation Dynamics*. New York: Springer. 724-733. Also in *Proceedings of the 5th International Conference of Pedestrian and Evacuation Dynamics*. Retrieved from <http://www.millerhooks.umd.edu/publications/conf15.html>

Groner, N.E. (2009) Situation Awareness Requirements Analysis for Emergency Management Planning (Working paper 09-02). New York: The Christian Regenhard Center for Emergency Response Studies.

Groner, N.E. (2009) A Situation Awareness Analysis for the Use of Elevators During Fire Emergencies. *4th International Symposium on Human Behaviour in Fire: Conference Proceedings*. London: Interscience Communications, pp. 61-72.

Groner, N.E. and Till, R. (2009) Designing Complex Subway Emergency Response Systems using Desirable System States, *TRB 88th Annual Meeting Compendium of Papers*, Washington, DC: Transportation Research Board.

Groner, N. (2008) Two Systems Safety Analyses Useful in the Design and Management of Security Systems. *Journal of Applied Security Research*. 3 (3/4), pp. 351 – 372.

Groner, N. E. (2008) Giving Thought to Process: To Maximize Staff Performance, Managers Should Streamline Systems, Match Personnel to the Right Jobs, and Encourage Creative Thinking. *Security Management*, July, 2008.

Groner, N. E. (2006) Using Performance-Based Design to Help People Adapt to Uncertainty during Fire Emergencies. *Proceedings of the 6th International Conference on Performance-Based Codes and Fire Safety Design Methods*, June 14-16, 2006, Bethesda, MD: Society of Fire Protection Engineers.

Groner, N. E. & Grossberger, K. J., (2006) User-Centered Design in Emergency Management: The Leadership Factor. *Security Director*, Winter 2006, pp. 13, 15, 17.

Averill, J., Mileti, D., Peacock, R., Kuligowski, E., Groner, N., Proulx, G., Reneke, P., & Nelson, H. (2005) *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Occupant Behavior, Egress, and Emergency Communications (NIST NCSTAR 1-7)* Gaithersburg, MD: National Institute of Standards and Technology.

Groner, N. E. (2005) Integrating Physical Systems and Human Behavior Using Codes and Standards Requirements for Building Evacuation. NIST SP 1032; January 2005. Workshop on Building Occupant Movement During Fire Emergencies. Proceedings. Session 2.3. June 10-11,

2004, Gaithersburg, MD, Peacock, R. D.; Kuligowski, E. D., Editor(s)(s), 8-13. Also available from <http://fire.nist.gov/bfrlpubs/fire05/PDF/f05003.pdf>.

Groner, N. E. (2005) Achieving Situation Awareness is the Primary Challenge to Optimizing Building Movement Strategies. NIST SP 1032; January 2005. Workshop on Building Occupant Movement During Fire Emergencies. Proceedings. Session 3.5. June 10-11, 2004, Gaithersburg, MD, Peacock, R. D.; Kuligowski, E. D., Editor(s), 55-56. Also available from <http://fire.nist.gov/bfrlpubs/fire05/PDF/f05005.pdf>.

Groner, N. E., (2005) All-Hazards Approach is Needed to Support Building Movement Strategies. NIST SP 1032; January 2005. Workshop on Building Occupant Movement During Fire Emergencies. Proceedings. Session 3.4. June 10-11, 2004, Gaithersburg, MD, Peacock, R. D.; Kuligowski, E. D., Editor(s)(s), 53-54. Also available from <http://fire.nist.gov/bfrlpubs/fire05/PDF/f05004.pdf>.

Groner, N. E. (2005) On Not Putting the Cart Before the Horse: Design Enables the Prediction of Decisions about Movement in Buildings. NIST SP 1032; January 2005. Workshop on Building Occupant Movement During Fire Emergencies. Proceedings. Session 4.6. June 10-11, 2004, Gaithersburg, MD, Peacock, R. D.; Kuligowski, E. D., Editor(s)(s), 96-98 pp, 2005. Also available from <http://fire.nist.gov/bfrlpubs/fire05/PDF/f05006.pdf>.

Groner, N. E. (2004) User-centered Design Can Produce Safer and More Cost-effective Buildings by Supporting the Adaptive Responses of Emergency Teams and Occupants. Proceedings of the 3rd International Symposium on Human Behaviour in Fire. London: Interscience Communications, pp. 457-462.

Groner, N. E. (2003) Mitigation is Part of National Security: Potential for Human Factors Contributions to the Improvement of Building Evacuations. Gateway, Human Systems Interaction Analysis Center Newsletter, Vol. 13, No. 4, pp 19-20.

Pauls, J., and Groner, N. E. (2003) Human Factors contributions to Building Evacuation Research and Systems Design: Opportunities and Obstacles. In *Making the Nation Safe from Fire: A Path Forward in Research*. Washington, DC: National Academies Press.

Groner, N. E. (2002) A Compelling Case for Emergency Elevator Systems. *Fire Engineering* ssue Vol. 155, No. 10 (October, 2002) pp. 126-128.

Groner, N. E. (2002) Viewpoint: A Future Where Engineering Supports People Adapting to Survive Fires. *Fire Protection Engineering*, No. 16 (Fall 2002) p. 3.

Groner, N. E. (2002) Regulating Human Behavior: Using Fire Safety Codes to Maximize Performance. *Extended Abstracts: Fire Protection Strategies in 21st Century Building and Fire Codes Symposium*. Baltimore, MD, September 17-18, 2002, pp. 83-88.

Pauls, J., and Groner, N. E. (2002) Human factors contributions to building evacuation research and systems design: opportunities and obstacles. In *Proceedings of the Workshop to Identify Innovative Research Needs to Foster Improved Fire Safety in the US, 15-16 April 2002*. Washington, DC: National Academy of Sciences.

Groner, N. E. (1999) A Critique of Event Modeling as Applied to Human Reliability and a Suggested Alternative. *Proceedings of the SFPE Symposium on Risk, Uncertainty, and Reliability in Fire Protection Engineering*. Baltimore, MD, May 12-14, 1999, pp. 125-134.

Groner, N. E. (1998) Intentional systems representations are useful alternatives to physical systems representations of fire-related human behavior, *Human Behavior in Fire: Proceedings of the First International Symposium*, University of Ulster, pp. 663-672. (Republished in *Safety Science*, Pergamon, Vol. 38 (2001), pp. 85-94.)

Groner, N. E. (1998) People power: Experts designing fire protection systems for buildings should think of people as part of the solution. *Canadian Consulting Engineer*, Vol. 39, Special Issue (May), pp. 30-32.

Groner, N. E. and Williamson, R. B. (1998) Scenario-Based Goal Decomposition: A Method for Implementing Performance-Based Fire Safety Analysis, *Proceedings of the Second International Conference on Fire Research and Engineering*, pp. 200-211.

Groner, N. E. and Williamson, R. B. (1997) Using a Table Of Desirable Systems States to Integrate Models of Fire Development with Active System And Human Responses to a Fire Scenario, *Proceedings of the Fire Risk and Hazard Assessment Research Application Symposium*, National Fire Protection Research Foundation Society of Fire Protection Engineers, pp. 142-151.

Groner, N. E. (1996) Viewpoint: Putting people into the performance-based design option, *Fire Technology*, Vol. 32, No. 3, pp. 281-284.

Groner, N. E. (1996) Important "People" Problems in Hazard Analyses can be Modeled by Using a Cognitive Systems Approach. *Proceedings of the Symposium on Fire Hazard and Risk Analysis*. National Fire Protection Research Foundation. pp. 422-429.

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Groner, N.E. (1993) *A Guide to Board and Care Fire Safety Requirements in the 1991 Edition of the Life Safety Code*. (NIST-GCR-96-629) National Institute of Standards and Technology, Gaithersburg, MD 20899. Republished by Life Safety Systems and Strategies, Santa Cruz, CA.

Groner, N.E., and Levin, B. M. (1992) *Human Factors Consideration in the Potential for Using Elevators in Building Emergency Evacuation Plans*. (NIST-GCR-92-606) National Institute of Standards and Technology, Gaithersburg, MD 20899.

- Groner, N.E. (1989) *A Fire Department Guide to Evaluating Fire Emergency Plans*. Fair Oaks, CA: Favro McLaughlin and Associates.
- Groner, N.E. (1990). Compliance and codes. Interviewing victims and witnesses. In *Fire Related Human Behavior, Course Guide*. Emmitsburg, MD: National Emergency Training Center.
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- Groner, N. E., and Levin, B. M. (1985). A measure of the difficulty of evacuating elderly and impaired residents from board and care homes. In R. Swezey (Ed.), *Proceedings of the Human Factors Society 29th Annual Meeting*. Santa Monica, CA: Human Factors Society.
- Groner, N. E., and Keating, J. P. (1984). *Fire Safety Manual for the National Park Service* (NBS contract no. NP82SBCA1740). Seattle, WA: University of Washington.
- Groner, N. E. (1982). *A Matter of Time: A Comprehensive Guide to Fire Emergency Planning for Board and Care Homes* (NBS-GCR-82-408). Washington, DC: National Bureau of Standards. (NTIS No. PB83-139345) Distributed by the National Clearing House for Rehabilitation Training Materials and by Project Share.
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- Groner, N. E., Keating, J. P. and Loftus, E. F. (1978, July 16). Recommendation for a fire alarm and fire safety training: Emergency programs tailored to fit behavior. *Hospitals, Journal of the American Hospital Association*, pp. 111-115. Republished in *Speaking of Fire...* (1983, Winter) (newsletter of the International Fire Service Training Association) pp. 1, 3.
- Groner, N. E. (1978). Leadership Situation in academic departments: Relations among measures of situational favorableness and control. *Research in Higher Education*, 8, pp. 125-143.
- Klote, J.H., Levin, B.M., and Groner, N.E. (1995) Emergency elevator evacuation systems. *Elevators, Fire, and Accessibility*. American Society of Mechanical Engineers. New York, NY., pp. 131-150.

Klote, J. H., Alvord, D. M., Levin, B. M., and Groner, N. E. (1992). *Feasibility and Design Considerations of Emergency Evacuation by Elevators*. (NISTIR 4870) National Institute of Standards and Technology, Gaithersburg, MD 20899.

Levin, B.M., and Groner, N.E. (1995) Some control and communication considerations in designing an emergency elevator evacuation system. *Elevators, Fire, and Accessibility*. American Society of Mechanical Engineers. New York, NY. pp. 190-193.

Levin, B. M. and Groner, N. E. (1994). *Human Factors Considerations for the Potential Use of Elevators for Fire Evacuations of FAA Air Traffic Control Towers*. (NIST-GCR-94-656) National Institute of Standards and Technology, Gaithersburg, MD 20899.

Levin, B. M., Groner, N. E., and Paulsen, R. (1993). *Affordable Fire Safety in Board and Care Homes: A Regulatory Challenge — Final Report*. (NIST-GCR-93-632) National Institute of Standards and Technology, Gaithersburg, MD 20899.

Levin, B. M. and Groner, N. E. (1992). *Human Behavioral Aspects of Staging Areas for Fire Safety in GSA Buildings*. (NIST-GCR-92-606) National Institute of Standards and Technology, Gaithersburg, MD 20899.

Levin, B. M., Groner, N. E., and Paulsen, R. (1992). *Affordable Fire Safety in Board and Care Homes: A Regulatory Challenge — Interim Report*. (NIST-GCR-92-611) National Institute of Standards and Technology, Gaithersburg, MD 20899.

Keating, J.P. and Groner, N.E. (1990). Interviewing victims and witnesses. In *Fire Related Human Behavior, Course Guide*. Emmitsburg, MD: National Emergency Training Center.

Kent, M. B., Logan, A. B, and Groner, N. E. (1984). *Paperwork Burden Analysis of the 1-6-84 Draft Benzene Standard*. (OSHA Contract No. J-9-F-2-0069). McLean, VA: JRB Associates.

Kent, M. B., Perry, W. G., Gallagher, K., Groner, N. E., Weintraub, J. M., New, C. B., and Allison, C. J. (1984). *Technological Feasibility and Economic Impact Study of Alternative Standards for Benzene*. (OSHA Contract No. J-9-F-2-0069). McLean, VA: JRB Associates.

Klote, J. H., Deal, S. P., Levin, B. M., Groner, N. E., Donoghue, E. A. (1993). *Workshop on Elevator Use During Fires*. (NISTIR 4993). Gaithersburg, MD: National Institute of Standards and Technology.

Nelson, H. E., Levin, B. M., Shibe, A. J., Groner, N. E., Paulsen, R. L., Alvord, D. M., and Thorne, S. D. (1983). *A Fire Safety Evaluation System for Board and Care Homes* (NBSIR-83-2659). Washington, DC: National Bureau of Standards.

Morasch, B., Groner, N. E., Keating, J. P. (1979). Type of activity as a mediator of perceived crowding. *Personality and Social Psychology Bulletin*, 5, pp. 223-226.

Recent presentations

Groner, N. E. (July 22-24, 2010). Human Behavior in Fire: Why Do We Behave Like We Do? *Annual Meeting of the National Association of State Fire Marshals*. Chicago.

Groner, N. E., Miller-Hooks, E., & Feng, L. (2010). Prospects for the Design of Cognitive Systems that Manage the Movement of Large Crowds. *5th International Conference on*

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