Peer Review of Federal Aviation Administration Research on the Effect of Passenger Seat Pitch and Width on Aircraft Cabin Evacuation Efficiency

Committee

Nancy J. Currie-Gregg

Chair

Nancy Currie-Gregg is Deputy Director and Chief Technology Officer at Texas A&M University's Bush Combat Development Complex where she is responsible for national defense research and development projects. She holds appointments in Industrial and Systems Engineering and Aerospace Engineering and is internationally recognized for her human-system integration, safety engineering, and risk management expertise.

Dr. Currie-Gregg spent the vast portion of her career supporting NASA's human spaceflight programs and projects. Selected as an astronaut in 1990, she accrued 1000 hours in space as a mission specialist on four space shuttle missions. Following the Space Shuttle Columbia tragedy in 2002, she led the Safety and Mission Assurance Office, enabling the safe return to flight of the Space Shuttle. She then served for over a decade as Chief Engineer and Principal Engineer with the NASA Engineering and Safety Center, conducting interdisciplinary engineering assessments critical to NASA's human spaceflight programs. As a retired U.S. Army Colonel and Master Army Aviator, she logged over 4,000 flying hours in military aircraft.

Among her many awards and honors are the U.S. Government Presidential Rank Award for Meritorious Senior Professional; NASA’s Exceptional Service Medal, Distinguished Service Medal, Outstanding Leadership Medal, and four Spaceflight Medals; the Defense Superior Service Medal with Oak Leaf Cluster, Legion of Merit, and Defense Meritorious Service Medal with Oak Leaf Cluster. She is a member of the Army Aviation Hall of Fame, Women in Aviation International Hall of Fame, Delaware Aviation Hall of Fame, Ohio Veteran’s Hall of Fame, and a recipient of the distinguished alumni award from The Ohio State University and the University of Houston’s College of Engineering.

She received her bachelor's degree in biological sciences from The Ohio State University, a master of science in safety engineering from the University of Southern California, and a Ph.D. in industrial engineering from the University of Houston.

Bruce Bradtmiller

Member

Bruce Bradtmiller, a physical anthropologist, is the Senior Consulting Scientist Emeritus at Anthrotech. Since joining the firm in 1983, Dr. Bradtmiller has designed, conducted, and directed numerous body size surveys and other anthropometric research projects. He has overseen the execution of major anthropometric surveys of US military services, as well as the nation's law enforcement officers to better accommodate that population in its vehicular workspace. His leadership in overseeing surveys has included both traditional tape-and-caliper measurements as well as 3D surface scans.

Dr. Bradtmiller has worked on anthropometric accommodation for an array of products including respirators, eyewear, helmets, gloves, dress and functional clothing, chemical protective garments, implantable cardiac defibrillators, automotive lumbar supports, infant car seats, and breast pumps.

He is an appointed expert to the ISO Technical Committee 159 on Ergonomics, Subcommittee 3 on Anthropometry and Biomechanics, and the lead author of ISO standards on anthropometry. Dr. Bradtmiller received his B.A. in Anthropology and French from Indiana University and his M.A. and Ph.D. in anthropology from Northwestern University.

Rory A. Cooper

Member

Rory A. Cooper is the Assistant Vice Chancellor for Research for STEM and Health Sciences Collaboration, a Distinguished Professor of Rehabilitation Engineering, and FISA Foundation and Paralyzed Veterans of America Professor of Rehabilitation Engineering in the School of Public Health and Rehabilitation Sciences at the University of Pittsburgh. He also holds appointments in the Departments of Mechanical Engineering, Bioengineering, Orthopedic Surgery, and Computer Science (Robotics Institute). He is Founder, Director, and CEO of the U.S. Department of Veterans Affairs Human Engineering Research Laboratories at the University of Pittsburgh and Senior Research Career Scientist and Research Center Director for the U.S. Department of Veterans Affairs. From 1997 to 2018, he served as Chair of the Department of Rehabilitation Science and Technology at the University of Pittsburgh. His research has centered on the engineering, invention, design, evaluation, and transfer of assistive technologies, including wheelchairs, robotics, and smart devices. He has authored more than 350 peer-reviewed journal papers and 10 books in the field of rehabilitation science and engineering and holds more than 20 patents. In 2024, he was named a member of the National Academy of Engineering (NAE) in recognition of wheelchair innovations that transformed the health, mobility, and inclusion of people with disabilities and older adults. He has been named a Fellow of the American Association for the Advancement of Science, Royal Society of Medicine, National Academy of Inventors, and Biomedical Engineering Society. He was a member of the NASEM Committee for a Study of the Technical Feasibility of Aircraft Wheelchair Restraint Systems and the Committee on the Use of Selected Assistive Products and Technologies in Eliminating or Reducing the Effects of Impairments. Dr. Cooper earned a B.S. and M.S. in electrical engineering from California Polytechnic State University and a Ph.D. in electrical and computer engineering from the University of California, Santa Barbara.

Barbara M. Dunn

Member

Barbara M. Dunn is an independent aviation safety consultant and the current President for the International Society of Air Safety Investigators (ISASI). She is a member of the International Civil Aviation Organization's (ICAO) Cabin Safety Working Group and Human Factors Working Group (HF11). Ms. Dunn is a safety professional with more than 40 years of experience in the transportation industry with a focus on accident prevention and investigation. In 2022, Ms. Dunn received the ISASI's Jerome F. Lederer Award. She is a former recipient of the Canadian Minister of Transport's Canadian Aviation Safety Award for her work to promote aviation safety with her work around Critical Incident Stress response. In 2003, Ms. Dunn retired after 32 years as a working cabin crewmember for Air Canada. She has contributed to published papers on emergency evacuation and accident investigation procedures and has taught courses on accident preparedness and response and cabin safety.

Edwin Galea

Member

Edwin Galea is a professor and the founding director of the Fire Safety Engineering Group (FSEG) of the University of Greenwich in London where he has worked in the area of Computational Fire Engineering (CFE) research since 1986. FSEG are developers of the EXODUS suite of evacuation software and the SMARTFIRE fire simulation software. He is the author of over 300 academic and professional publications and serves on a number of standards committees concerned with fire and evacuation for organisations such as: IMO, ISO, BSI and the SFPE Task Group on Human Behaviour in Fire.

He also sits on several UK Government committees concerned with civil defence. He has served on several major Inquires and legal cases as an expert in fire and evacuation including: the Paddington Rail Crash, the Swiss Air MD11 crash, the Admiral Duncan Pub bombing and is currently an expert serving on the Grenfell Tower Fire Inquiry. He assisted the IMO in framing MSC Circ 1033, 1238 and 1533. His work is applied to the building, aviation, maritime and rail industries.

Since 1997 Professor Galea has trained over 650 fire and safety professionals from 44 countries in human behaviour, evacuation modelling, fire dynamics and fire modelling through a series of annual short courses he runs at the University of Greenwich. He has successfully supervised 31 PhD and 6 MSc by Research students in fire and evacuation related studies. He is the director for the MSc By Research within the School of Computing and Mathematical Sciences at the University of Greenwich and is a Visiting Professor at Ghent University Belgium and the Western Norway University of Applied Sciences (HVL), Haugesund, Norway where he teaches on Fire Safety Engineering MSc courses and supervises doctoral students.

Professor Galea studied at Monash University (B.Sc. Hons, DipEd) and received his Ph.D. in Astrophysics from the University of Newcastle NSW.

Rush F. Green

Member

Rush F. Green worked for the Boeing Company more than 31 years. Before he retired from Boeing in 2022, Mr. Green was an Associate Technical Fellow for human factors, where he performed research and analysis in physical human factors, including digital human modeling and ergonomic analyses of airplane design, and developed processes for the integration of human engineering. Prior to that, Mr. Green worked at Boeing as a Human Factors Engineer, where his research included the development of human modeling software and the ergonomics of airplane designs. His research and analysis incorporated other topics, including anthropometry, biomechanics, passenger survivability, in-flight medical emergencies, flight attendant ergonomics, effects of aging, and passenger travel experience. Mr. Green has published articles and presented papers on aviation topics including digital human modeling and human factors simulation. Mr. Green has a B.A in Mathematics from Pomona College and a M.S. in Biomechanics from University of Oregon, Eugene.

Mark Hutchins

Staff Officer