

GLENN C. HOURAHAN, P.E.

Broad Run, VA 20137

703/625-2522 Glenn@Hourahan.com

HVACR • Building Science • Energy Conservation

Professional engineer with more than three decades of leading industry-wide changes to proactively address strategic commercial, regulatory, and environmental challenges. Skilled at directing broad industry programs, identification of industry research opportunities, and development of multi-year private-public sector partnerships. Accomplished negotiator who has secured financial and technical commitments for multiple research programs totaling \$35M. Dynamic leader of complex multidisciplinary teams and manager of large committees.

Areas of Expertise

Program Management • Research Management • Technology Evaluation • Partnering and Establishing Collaborations • Business Plans • Negotiations • Policy Development • Strategic Planning • Staff Management • Team Leadership / Motivation

PROFESSIONAL EXPERIENCE

HOURAHAN CONSULTING, LLC, Broad Run, VA, 2019 - present

A private consultancy in the sectors of heating, ventilation, air-conditioning, and refrigeration (HVACR); building sciences; and energy efficiency.

AIR CONDITIONING CONTRACTORS OF AMERICA (ACCA), Arlington, VA 2002 - 2019

A not-for-profit 501(c)(6) trade association representing HVACR contractor business owners.

Senior Vice President, Technical, Accreditation, & Educational Policy Development

Created organizational vision and spearheaded execution of strategic objectives, including national accreditation for contracting businesses. Led development of standards and interfaced with allied organizations. Directed department efforts of 4 program managers, 6 consultants, and committee structure of ~150 volunteers drawn from diverse industry sectors.

- Led all aspects of cross-industry efforts to enhance professionalism of HVACR industry. Guided open, consensus-driven process to reduce energy consumed by comfort conditioning systems that represent ~40% of US primary energy use; extensive involvement from manufacturer, contractor, distributor, allied association, utility, and state/federal sectors. Established performance metrics for residential and commercial HVACR applications.
 - Developed processes that positioned ACCA as a Standards Development Organization under the auspices of the American National Standards Institute (ANSI).
 - Led the creation of ANSI-recognized standards that were adopted by industry, US DOE, US EPA EnergyStar, State entities, and major utilities.
 - Led development and updating of ACCA design manuals related to building load calculations, HVAC duct design, zoning, and equipment selection for residential and commercial applications; many became ANSI-recognized standards.
- Building on ACCA's ANSI-recognized standards, guided the development of a contractor's recognition program. Starting in January 2012, the EPA required that all home builders use participants from ACCA's Quality Assured Program if the new home is to be eligible for the EnergyStar label.

AIR CONDITIONING & REFRIGERATION TECHNOLOGY INSTITUTE (ARTI), Arlington, VA 1998 - 2002

A not-for-profit 501(c)(3) organization established to undertake scientific research on HVACR issues. [ARTI is now known as the Air Conditioning, Heating & Refrigeration Technology Institute (AHRTI) since January 2008]

Vice President

Initiated and directed industry-government collaboration with multi-year mission to decrease energy consumption in buildings and homes while simultaneously improving indoor environmental quality. Secured resource commitments from private industry, trade associations, professional societies, state energy offices, and federal agencies. Coordinated and facilitated technical activities of a committee structure comprised of senior technologists and scientists from industry, academia, national laboratories, and government agencies.

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- *HVAC&R Research for the Twenty-First Century (21-CR) Program*: Created technology roadmap resulting in a new initiative designed to improve energy efficiency and indoor air quality. Established and directed subsequent private-public sector collaboration of HVACR research focused on alternative equipment, energy efficiency improvements, improved system integration, improved indoor environmental quality, and environmentally friendly working fluids.
 - Crafted program objectives, prepared proposal documents, secured financial commitments, negotiated contracts with researchers/subcontractors, and ensured achievement of program goals. Directed team of 4 project managers and marshaled talents of a volunteer committee structure of 125 senior engineers and researchers drawn from industry, academia, national labs, and federal/state entities.
 - Positioned U.S. manufacturers to develop higher efficiency systems used in residential, commercial, and institutional building applications with 45 projects funded at \$8.7M.
 - *Materials Compatibility and Lubricant Research (MCLR) Program*: Directed first industry-government activity by U.S. HVACR industry with substantial support from the U.S. Department of Energy (DOE) and other stakeholders. Initiated, planned, and monitored research to accelerate introduction of environmentally acceptable substitutes for chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerants. Focused on materials compatibility, lubricants, property measurements, and development of test and predictive methods.
 - Authored proposals and established relationships to secure third-party financing; developed management plan to guide \$11M program of 47 research projects.
 - Positioned U.S. manufacturers to accelerate mandated phase-out of CFC refrigerants (ozone depleting substances) four years in advance of Kyoto Protocol requirements.

AIR CONDITIONING & REFRIGERATION INSTITUTE (ARI), Arlington, VA 1990 - 2002

Not-for-profit 501(c)(6) trade association representing manufacturers of air-conditioning and refrigeration equipment. [ARI is now known as the Air Conditioning, Heating & Refrigeration Institute (AHRI) since January 2008]

Director of Technology 1994 - 2002

Identified, advocated, planned, and undertook multiple initiatives to effectively address challenges to US HVACR industry. Coordinated industry efforts to ensure initiation of industry critical research, and reviewed activities among national laboratories, universities, and trade and professional associations. Led multiple committees and product sections. Directed staff support for 125+ industry meetings during an 11-year period.

- Championed *Alternative Refrigerants Evaluation Program (AREP)*, a critical initiative enabling private industry to be prepared for subsequent government mandated phase-out of ozone depleting and global warming refrigerants; total projects valued at \$4M. Coordinated participation among top US producers, and Japanese and European manufacturers.
 - Planned and monitored research that accelerated introduction of environmentally acceptable substitutes for chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerants used in air conditioners, heat pumps, and refrigeration systems.

Research Manager 1990 - 1994

Coordinated industry activities to identify research needs for public-sector R&D programs. Interacted with multiple industry committees on issues of energy conservation, refrigerants, building air quality, and occupant comfort.

- Facilitated industry track for a multi-year, \$12.5M air conditioning and refrigeration research initiative funded by the US Department of Commerce Advanced Technology Program (ATP).

Previous Professional Experience

AUTOMATIC EQUIPMENT SALES (AES) OF WASHINGTON, Alexandria, VA

\$25 million/yr distributor of heating and air conditioning equipment

Territory Manager

Led commercial equipment sales from design layout and equipment specifications through value negotiating to order release for \$3M/year strategic accounts.

DUNHAM-BUSH, INC., West Hartford, CT

\$35 million/yr manufacturer of screw compressors and refrigeration equipment for commercial and industrial refrigeration/AC

Materials Manager

Product Manager

Production Planner

Project Engineer

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EDUCATION

Johns Hopkins University, Baltimore, MD
Master of Science, Environmental Engineering

Rensselaer Polytechnic Institute, The Hartford Graduate Center, Hartford, CT
Master of Business Administration

University of Connecticut, Storrs, CT
Bachelor of Science, Mechanical Engineering

INDUSTRY RECOGNITIONS

Elevated to Fellow, American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), 2010

Recipient, ASHRAE Exceptional Service Award, 2006

Recipient, ARI Schulze Award for Distinguished Service, 2003

Recipient, ASHRAE Distinguished Service Award, 2000

PROFESSIONAL AFFILIATIONS / MEMBERSHIPS / LICENSING

Member, American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Atlanta, GA; 1984- present

Member, American Society of Mechanical Engineers (ASME), New York, NY; 1990 - present

Member, U.S. National Team – International Energy Agency (IEA) Implementing Agreement for Heat Pumping Technologies,
IEA Heat Pump Center, The Netherlands; 1994 - present

Member, International Conferences Advisory Committee, Purdue University, West Lafayette, IN; 1996 - present

Executive Committee Member, High Performance Building Council (a Council of the National Institute of Building Science);
Executive Committee, Washington, DC; 2008 – 2016

Licensed Professional Engineer: Maryland, and Virginia

PRESENTATIONS & PUBLISHED WORKS

Organized more than 50 seminars for various national and international meetings and conferences. Published numerous articles and papers related to alternative refrigerants, air conditioning and refrigeration research, indoor air quality, HVAC equipment sizing / installation, energy efficiency, and recycling. See <https://www.hourahan.com/publications/> for details.