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**EXPERTISE**

- Indoor Air Quality
- HVAC Design and Evaluation
- Building Science
- Moisture Migration Evaluations
- Entrainment of Waste Air Streams
- Energy Audits
- Ground Vapor Intrusion Diagnostics
- Building Enclosure Air and Water Leakage
- Infrared Thermography
- Design of Energy Efficient HVAC Systems that Complement IAQ

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**EDUCATION**

BS / 2005  
Environmental Science  
Lyndon State College

AS / 1974  
Mechanical Engineering  
Vermont Technical College

40-hour OSHA Hazardous  
Waste Training # 05058

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**EXPERIENCE**

Project 30 years

**PROFESSIONAL PROFILE**

As Chief Indoor Air Quality Engineer for the past twenty years, Mr. McKnight has developed and implemented HVAC, IAQ diagnostics, and measurement programs to evaluate building and HVAC systems performance with respect to providing superior indoor air quality to occupants. Beyond measurements and sampling for contaminants Mr. McKnight has developed techniques for:

- Measurement of moisture (vapor) emission rates from ground contact concrete.
- Modified ASTM Water Intrusion Testing Techniques to locate water leakage pathways in existing structures.
- Measurement of large building enclosure air leakage rates.
- Entrainment and air flow analysis around buildings.
- Analysis of vadose zones capacity for sub-slab emissions control.

Recent IAQ evaluations include locating amplified microbial reservoirs, measuring airborne volatile organic compounds, wall and roof condensation studies and indoor air settled dust analysis. Mr. McKnight has successfully completed large-scale soil gas intrusion studies on brownfield sites, and plume entrainment studies that model contaminate and airflow around buildings.

Mr. McKnight has also been active in analyzing energy use of commercial buildings, the design of energy efficient building enclosures and HVAC equipment, as well as having over 30 years experience in mechanical HVAC system design and troubleshooting.

Mr. McKnight is a resource for TBS's participation in NHPUC Pay 4 Performance Program and has managed numerous energy audits following ASHRAE guidelines for execution of audits and IPMVP protocols for measurement and verification of ECMS.

Performance testing has included building wall and enclosure commissioning (BCx and EECx) and testing of building enclosures for overall air and water leakage, as well as water and vapor intrusion studies involving windows, foundations, and other building shell components. Mr. McKnight has completed commissioning programs for a wide variety of existing and new HVAC systems following ASHRAE and NIBS guidelines.

Mr. McKnight has presented papers at ISIAQ as well as developed and delivered training programs for BOC and MEIAQ. As part of an ongoing effort to provide current information to practitioners, Mr. McKnight has spoken at numerous regional conferences this year including Better Building By Design and the Maine Indoor Air Quality Conference.





Recent professional activities include acquiring the 40 hour OSHA Hazardous Waste and Emergency Response Certificate # 05058 and is a certified ABAA (Air Barrier Association of America) Auditor #10096. He also currently serves on the ABAA Whole Building Air Leakage Testing Technical Committee writing test standards and has received Infrared Camera training at ITC in Billerica, MA.

Mr. McKnight is a licensed Professional Engineer (State of Vermont #54228) and a LEED® Accredited Professional (Leadership in Energy and Environmental Design).

#### **Short List of Recent Relevant Projects**

- Whole Building Air Leakage Test, Holy Family Hospital ED Addition, Methuen, MA
- Building Enclosure Commissioning and Whole Building Leakage Testing, Stone Hill College, Easton, MA
- Water Intrusion Study, Bridgeport School Department, Bridgeport, CT
- Diagnostic and Design Services for a Sub-Slab Emission Control System, Applejack Real Estate Management Co., Bennington, VT
- Diagnostics and Evaluation of Migration Pathways of Odiferous Contaminates, Bridgewater College, Bridgewater, VA
- HVAC, Plumbing, Lighting and Fire Alarm Commissioning, Building F - EMD Millipore Inc., Bedford, MA
- Water Intrusion Study, Window Flashing, Medomak Middle School, Waldoboro, ME
- Existing Wall Moisture Evaluation, Moran Center, Burlington, VT
- Mold and Unknown Odors Diagnostics and Evaluations, Oakridge School, Gilford County Schools, Greensboro, NC
- Energy Analysis & Recommendations for Improvement, Southern New Hampshire University, Manchester, NH
- Energy Audit, Lake Regions Community College, Laconia NH
- Energy Audit, White Mountain Community College, Berlin, NH
- Energy Study & Recommendations for Improvement of Ventilation System, Kennemetal VT Tap & Die, Lyndonville, VT
- Energy and HVAC Analysis, Existing Swimming Pool, University of Vermont, Burlington, VT

