



Professional Summary

Mr. O'Higgins specializes in investigation, testing, evaluation, and design of repairs for non-performing building mechanical systems including hot water and steam heating systems, central chilled water cooling systems, direct expansion air conditioning systems, exhaust systems, geothermal systems, plumbing (water, sanitary and storm) systems for Institutional, Educational, Pharmaceutical, Manufacturing, Hospitality and Residential buildings

Expertise

- Heating systems investigation
- Cooling systems investigation
- Building energy use modeling
- Piping (hot water/chilled water) investigation
- Building control systems investigation
- HVAC system air flow investigation
- Building energy surveys
- Building comfort conditions analysis
- Plumbing thermal hot water piping and heater investigations
- Plumbing sanitary piping investigation
- Mechanical code/standards analysis and review
- Design of Repairs, Development of Drawings and Specifications
- Construction Contract Administration

Education

<u>Year</u>	<u>University</u>	<u>Degree</u>
1971	Valparaiso University	B.S. Mechanical Engineering

Year Continuing Education

2004	LEED AP Accreditation Course and Exam, USGBC
2004	Certified Forensic Consultant, CFC Program and Exam, American College of Forensic Examiners International, Chicago, IL
2005	Preventing Moisture and Mold Problems: Design and Construction Guidelines, ASHRAE Orlando, FL
2007	Healthcare Facilities – Best Practices HVAC Design Considerations and Criteria, ASHRAE, Dallas, TX
2007	Introduction to Ground Source Heat Pumps, ASHRAE, Dallas, TX



- 2007 Designing "State of the Art" Green LEED Laboratories, Flow Safe, Inc., Buffalo Grove, IL
- 2008 Mock Arbitration Seminar – Part I & II, ASHRAE, New York, NY
- 2008 Time Management, Strategic Coach, Rosemont, IL
- 2008 Geothermal Heat Pump Systems Part I & II, ASHRAE, Itasca, IL
- 2009 Fundamental of High Efficiency Hot Water Heater Design & Application, Lochinvar Corp., Reading, PA
- 2009 Condensing Issues in Cast Iron Broilers, Callahan, Elgin, IL
- 2009 Design of Chilled Beam Systems and Applications, Trox Technik, Nashville, TN
- 2010 Contract Negotiations, Willis A&E, Chicago, IL
- 2010 Design Professionals Errors and Omissions, AIA, Oak Brook, IL

Professional Experience

Organization: Building & Environmental Consultants (BEC), a division of ITC Experts

2011 - Present **Title:** Collaborating Consultant

Summary: Provide oversight, leadership, and management of BEC's Building investigation practice related to mechanical (HVAC), electrical, and plumbing.

Organization: Metro Design Associates, Inc. – Elgin, IL

1994-Present **Title:** President, Vice President

1989-1994 **Summary:** Provide direction and management for multidiscipline consulting engineering firm specializing in HVAC and plumbing design related to new and renovation building projects. Specific experience in due diligence investigation of building infrastructure systems and forensic examination of building system problems and failures.



Organization: Owens Services Corporation – Bloomington, MN

1985 - 1989 Title: Vice President Contraction

Summary: Provided oversight and management of the design-building construction division of the company. Areas of expertise covered HVAC systems for Data Centers and manufacturing facilities.

Organization Beling Consultants, Inc – Moline, IL

1979 - 1985 Title: Manager of MEP/Principal

1975 - 1979 Title: Project Manager

Summary: Provided oversight and management of MEP consulting department specializing in hospital and educational buildings.

Organization Stanley Consultants, Inc – Muscatine, IA

1974 - 1975 Title: Mechanical Engineer

Summary: Responsible for the design of HVAC and plumbing systems for higher education and manufacturing facilities.

Organization Austin Co. – Des Plaines, IL

1971 - 1974 Title: Mechanical Engineer/ Estimator

Summary: Responsible for the design of HVAC systems for pharmaceutical and manufacturing facilities. GMP estimating of scope design documents.

Professional Affiliations, Achievements & Awards

Professional Affiliations:

- Licensed Professional Engineer
 - State of Illinois
 - State of Iowa
 - State of Wisconsin
 - State of Minnesota
 - State of Texas
 - State of Ohio



- State of Indiana

- **American Society of Heating Refrigeration and Air Conditioning Engineers, Inc. (ASHRAE)**
 - Member
 - Distinguished Services Award (DSA)
 - Vice Chairman Professional Development Committee
 - Chairman of PDC sub-committee
 - Past Director and Regional Chair of Region VI (two terms)
 - Past Chairman of Honors and Awards Committee
 - Reviewer ASHRAE 62.1 Electronic Course
 - Past Regional Vice Chairman of Promotion

- **American Board of Engineering and Technology – American College of Forensic Examiners**
 - Diplomat
 - Certified Forensic Consultant

- **US Green Building Council**
 - LEED AP

- **Environmental Testing and Balancing for Air and Hydronic Environmental Systems**
 - Past Certified Supervisor

- **Illinois Society of Professional Engineers**

- **National Society of Professional Engineers**

- **Service Associate Illinois Association of School Board Officials**
 - Member Professional Development Committee

Achievements & Awards:

- **Junior Engineer of the Year, Quad City**
- **Joint Engineering Council, 1979**
- **Distinguished Service Awards, ASHRAE, 1999**
- **Energy Design Award, ASHRAE, 1985**
- **Distinguished Service Recognition, Baxter Pharmaceuticals, 2000**

Presentations & Workshops:

- **“Design of Educational Facilities Infrastructure Systems”**, Presenter Illinois School Board Association, Chicago, Illinois, November 21-22, 2006
- **“Energy Conservation in Schools”**, Presenter, Wisconsin Tri-Conference Schools Meeting, Wisconsin Dells, Wisconsin, 2009



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Keith B. O'Higgins, P.E.
CFC, LEED AP