



**JAMES C. FREELING, P.E.**  
*PRINCIPAL ENGINEER*

*EDUCATION*

B.S., Mechanical Engineering  
Oregon State University, 1972

*REGISTRATIONS*

P.E., Mechanical Engineering  
State of Washington, No. 16708

P.E., Mechanical Engineering  
State of Oregon, No. 12653

*EXPERTISE*

Building Envelope Failure Investigations  
Building Envelope Design  
Ventilation Design  
Heat / Vapor Transfer through building materials  
Member of American Academy of Forensic Sciences



*PROFESSIONAL SUMMARY*

Mr. Freeling joined Pacific Testing Laboratories (PTL) in 1977 as Manager of the Nondestructive Examination Department. From 1980 to 1986, he served as Vice President. Mr. Freeling's duties included management of company operations and technical support of the company's ten departments. In 1986, Mr. Freeling served as the President of PTL providing corporate level engineering management. During the past 25 years he has always been involved in construction defects issues, building envelope design, and construction inspection. This includes numerous building envelope design projects. Mr. Freeling has courtroom experience spanning over a period of 30 years including dozens of depositions and trial testimonies.

Most recently in 1996, Mr. Freeling formed BEE Consulting, LLC (BEE) a consultancy that specializes in building envelope designs and inspections. In the last 14 years through BEE, Mr. Freeling has provided building envelope design and inspections using the most current design concepts available that utilize the "rainscreen" design approach. This concept is in the process of transforming the construction industry in the Pacific Northwest. The use of a "face sealed" building envelope has been generally replaced by the design concept that is solely utilized by Mr. Freeling's company.

Mr. Freeling has designed the building envelope system for numerous residential buildings and commercial structures in the Pacific Northwest and other climate regions of our country. He is accomplished in the use of WUFI 5.2 Pro Software for the prediction of moisture within building envelopes dependent on the envelope component variables and the environmental variables. He is the President and Principal Design Engineer at BEE Consulting and oversees a staff of Engineers, CAD Drafters, and experienced field inspectors