

## Raymond E. Patenaude, P.E.



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Raymond E. Patenaude, PE, CMA, CIAQP, CEM, RPIH, Principal Engineer for the Holmes Engineering Group LLC, is a registered Professional Engineer specializing in HVAC systems, moisture intrusion into buildings, and microbial contamination of building environments. He has been a Consulting Engineer for over thirty-eight years involved with the analysis, design and construction of building HVAC systems. As a recognized expert in his field, Mr. Patenaude, provides professional consultation and investigation in building science including: cause and origin of construction defects; building envelope assessments; HVAC failure causation analysis; energy analysis; moisture intrusion; mold growth investigations; and remediation management.

Mr. Patenaude is a former ASHRAE Vice President, DRC for Region XII and Chair of TC 1.12, Moisture Management in Buildings. In addition he was the Chair of the Project Monitoring Sub-Committee for the new "ASHRAE Guide for Buildings in Hot and Humid Climates". Currently Mr. Patenaude serves ASHRAE as a member of Standard 100, "Energy Conservation in Existing Buildings" and TC 1.12, "Moisture Management in Buildings". In addition, Mr. Patenaude is also a member of the National Society of Professional Engineers, the Florida Engineering Society, the National Academy of Forensic Engineers, the National Academy of Building Inspection Engineers, the National Institute of Building Sciences, Association of Professional Industrial Hygienists, the American Conference of Governmental Industrial Hygienists, American Industrial Hygiene Association and Chairman of the Board of the Certified Indoor Air Quality Professionals.

### Topic:

## Fundamentals of Building Envelopes and Humidity Control in Hot & Humid Climates

Designing buildings in hot & humid climates requires the integration of techniques found in the ASHRAE Guide for Buildings in Hot and Humid Climates and the ASHRAE Humidity Control Design Guide. Mr. Patenaude, P.E. will provide a presentation on the fundamentals of building envelopes in hot and humid climates, estimating dehumidification loads, control of outdoor ventilation air with the use of dedicated outdoor air systems and building air pressurization. These techniques are the main cause for concern for HVAC Engineers and comprise most building failures in hot and humid areas.