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Qualitative Sampling of the Building Envelope for Water Leakage

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Abstract

Industry standards for intrusive water leakage evaluations of the building envelope are promulgated by ASTM E 2128, Standard Guide for Evaluating Water Leakage of Building Walls, which lays out a purposeful step-by-step methodology by which information is accumulated and succeeding sampling locations are identified by a skilled professional; however, some laypersons have criticized building envelope survey findings that are not derived statistically from random sampling. This paper notes that there are relatively few building envelope investigations for which statistical random sampling, in and of itself, is a legitimate or practical methodology for achieving a comprehensive understanding of the sources and mechanisms of water leakage and, therefore, the use of quantitative (i.e., statistical) survey protocols to evaluate the validity of purposeful qualitative sampling of the building envelope is not appropriate. Further, this paper demonstrates that a building envelope evaluation that has been carried out in conformance with ASTM E 2128 satisfies current rules of evidence that require an experts sampling methodology and analysis to be based upon scientifically valid principles. In addition, this paper identifies fundamental assumptions that guide the initial steps of most water leakage evaluations, proposes basic categories for prioritizing the sampling, and discusses the potentially complementary roles of limited surveys by plaintiff and defense experts.

Keywords:
qualitative sampling, qualitative survey, purposive sampling, inductive analysis, random sampling, building envelope, ASTM E 2128, substantive significance, rules of evidence

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