Abstract

Title: **Building Cancer: A Property Manager's Nightmare**
Authors: W. Charles Perry, M.S., P.E. & Robert P. Mills, J.D.
Address: 231 W. 41st Avenue, San Mateo, CA 94403-4303
Phone: (650) 638-9241
Facsimile: (650) 638-9242
e-mail: wcperry@wcharlesperry.com
Date: May 13, 1999

At least 2,000 low-rise multi-use buildings nationwide suffer from a cancer that is completely destroying their roof structures. This cancer occurs in buildings with panelized plywood roofs that are insulated on their undersides and that have built-up-roof membranes on their topsides. It begins when water from green wood, construction-time rainfall, membrane leaks, condensation of migrating external vapor, or condensation of internally generated vapor becomes trapped between the roof membrane and the insulation. In the absence of adequate ventilation, this water then causes panel hangers to corrode, beam supports to corrode, wood-members to decay, and mold to grow. Due to the uniform design of panelized roofs, this cancer typically affects the entire roof with the most severe damage occurring to the panel hangers and nails. Insidiously, this damage is hidden from view by the insulation from the underside and the roof membrane from the topside. Depending on the specific moisture & ventilation conditions, a roof can reach the point of collapse in 1 to 10 years from the time water first penetrates the roof cavity. The presence of this cancer usually is unknown to these buildings' owners, managers, & tenants. It is rarely detected during annual roof inspections or pre-sale property inspections. And it usually remains undetected until a structural member unexpectedly collapses or a workman unexpectedly falls through the roof. By the usual time it is detected, the only available remedy is to replace the roof structure. Currently, for your average building this cost is roughly $1.5 million exclusive of lost rent and business disruption costs. Nationwide, this is potentially a $3 billion expense. The potential cost in terms of injuries from unexpected collapses & failures is incalculable.

Changes in occupancy, operation, & floor-plan as well as the aging of building components can infect a healthy building with this cancer. Consequently, at-risk buildings should be inspected annually by exposing the undersides of a statistically-significant number of randomly-selected roof panels in addition to panels in the vicinity of customary leak locations such as skylights, vents, parapets, mechanical equipment, et cetera. Each panel should be visually inspected for water damage, and the moisture content of adjoining wood members should be measured. The roofs of these buildings should be inspected externally. Potential leak locations should be tested with the building under a negative pressure. And the ventilation system should be tested for proper operation; this testing should document both the mechanical operation of the ventilation equipment as well as its psychometric effect on the building. Due to the complexity of the causes of this cancer, such inspections and any diagnoses for mitigation or repair should be performed only by professional engineers. In the event that a building owner is confronted with an extensive repair, he or she should contact an attorney immediately.

Building owners can potentially recover their costs from several parties. The first potential sources of recovery are their insurance companies. Unfortunately, insurance policies typically exclude long-term losses such as decay, mold, & corrosion; they also typically exclude defective construction; they try to exclude consequential damage from defective construction & failed building components; and they try to exclude health-care costs caused by mold infestations. Currently, these issues are being debated in court. The next potential sources of recovery are tenants, property managers, roof-maintenance companies, property inspection companies, sellers, developers, architects, engineers, general contractors, tenant improvement contractors, roofing subcontractors, insulation subcontractors, HVAC subcontractors, panelized-roof subcontractors, and associated material suppliers. These parties are usually pursued as a group due to the legal theory of equitable indemnity between joint tortfeasors. The individual theories of liability against this group range from contractual indemnification to assumption of risk to professional negligence to product liability. Given the number of possible causes, the complexity of the technical issues, the number of potential parties, the number of potential legal theories, and the inevitable cross-complaints from every party to every other, lengthy & complex litigation is often required for building owners to recover their costs.