

Systems, methods and tools for the interrogation of fiber-reinforced composite strength members to assess the structural integrity of the strength members. The systems and methods utilize the transmission of light through optical fibers that are embedded along the length of the strength members. The inability to detect light through one or more of the optical fibers may be an indication that the structural integrity of the strength member is compromised. The systems and methods may be implemented without great difficulty and may be implemented at any time in the life cycle of the strength member, from production through installation. The systems and methods have particular applicability to bare overhead electrical cables that include a fiber-reinforced strength member.