LIGHTNING STRIKES - SUBROGATION CONSIDERATIONS

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I. Characteristics and Effects of Lightning

A. Direct and indirect lightning strikes can and do cause serious physical damage to property. Damage from direct strikes can be caused by heat, explosion and/or fire, and damage from indirect strikes generally results from voltage surges through electric and telephone lines.

B. The number of amperes discharged can range from 1000 to 270,000 in extreme cases, lasting for a few millionths of a second, with lesser currents present for a longer period. Potentials can range as high as 15,000,000 volts. (Compare a 100 watt bulb using 120 volts and drawing less than one ampere.)

C. The flow of lightning is not steady or uniform; rather it is in the form of an impulse or surge.

D. The length of a lightning stroke averages 3000 to 5000 feet but can vary from 2000 to 16,000 feet. The lightning stroke follows the route of least resistance, choosing the best conductor to travel to earth.

1. Example: A lightning stroke hits a house (TV antenna) jumps to wiring or plumbing and follows the easiest metallic path through the house reaching the earth through a water supply line.

2. Example: A lightning stroke hits electric or telephone lines. The electric charge placed on the line creates a voltage spike or surge which travels through the line seeking an outlet to earth. The design voltage breaking down the insulating qualities of insulation, arcing across the air space separating conductors or tracking across a nonconducting surface, resulting in electrical failure.

3. Example: A lightning surge can travel through electric lines and enter building through service entrance line, continue into wiring system and jump to building steel or other electric equipment, through ground connection or neutral wire, return to electric panel and then to earth through ground connection.

E. Surge can travel miles from strike point in rural areas. In a city or town, it could travel to the nearest building or even skip the nearest building and travel blocks before entering a building.

F. The path which a surge takes after it enters a building (i.e. which appliance, electric outlet or electronic equipment is affected) is determined by resistance of wiring, with the surge following the path of least resistance. Repeated surges of high voltage can cause a deterioration of insulation, resulting in a failure occurring after a number of prior surges.

II. Lightning Protection Systems

A. NFPA 78, Lightning Protection Code, provides specifications for lightning protection systems and is a valuable source of information regarding the proper methods for installing and maintaining such systems. A lightning protection system generally includes air terminals, conductors, ground terminals, interconnecting conductors, arresters and other required connectors or fitting.

B. ANSI/IEEE C62.1 et seq. provides standards and specifications for various types and applications of surge arresters.

C. Underwriters Laboratories, Inc. has a Master Label Service for lightning protection systems providing for both factory inspection and labeling of lightning protection materials and components, as well as field inspections of a substantial number of installations for which Master Labels have been issued.

D. The NFPA 78 Code provides different specifications for different types of structures, including:

Chimneys and Vents Flat, Domed, Rounded and Sloping Roofs Masts, Spires and Flagpoles Metal Towers and Tanks
Grain, Coal and Coke Handling and Processing Structures
Heavy Duty Stacks
Structures Containing Flammable Liquids and Gases
Sailboats, Power Boats, Small Boats and Ships Livestock in Field
Picnic Grounds, Playgrounds, Ball Parks and Open Spaces
Aircraft - parked

E. Maintenance - Proper maintenance of lightning protection systems is essential to effective protection. Particular attention should be given to ground connections, which can be broken at ground level or just below. They may also have been inadvertently disrupted or damaged by repairmen or contractors working in the area.

F. Utility companies install surge arresters on power and communications lines where they enter structures and at power utility plants. (See Article 280 of NFPA 70, National Electric Code.) The arresters take the abnormally high voltage, stop the normal flow of current and momentarily connect the electric lines to earth, reducing the voltage on the line. Most utilities install arresters on primaries of transformers on systems of 44,000 volts or less. An arrester is not always entirely effective. The surge can continue down the line if below the operating value of the arrester or if the arrester does not discharge the surge fast enough.

G. The micro and mini components of printed circuit boards and encapsulated parts of electronic equipment are highly susceptible to damage from surges (i.e. telephone and computer lines.)

III. Lightning Strike Investigation - Subrogation Potential

A. The fact that lightning is the initial factor which results in property damage by way of fire, electrical surge or explosion does not necessarily mean that the resulting property damage is an "Act of God" in the same way that one considers lightning, itself, to be an "Act of God".

B. Third-party liability can often be predicated upon a number of theories and factual circumstances, such as:

1. The failure of a utility or property owner to utilize proper lightning protection systems as specified by the NFPA.

2. The improper installation of a lightning protection system by a contractor, or improper design of a system by an architect or engineer.

3. The disruption or damaging of an otherwise sound and functioning lightning protection system by a contractor or repairman working on the premises.

4. The failure to properly inspect and maintain a lightning protection system by one who has, by contract or otherwise, an obligation to do so.

C. Investigative Considerations

1. Consider immediate engagement of an expert who is qualified to determine the effect of a lightning strike on the affected property and the adequacy of inadequacy of lightning protection systems utilized to prevent property damage.

2. Consider retention of legal counsel to supervise the subrogation investigation to free the adjuster to promptly and properly handle adjustment problems. Counsel will apply technical information received from expert to potential legal causes of actions.

3. Gather as much information as possible concerning lightning activity in the area and the time of the occurrence. Such information can be obtained from local people, the United States Weather Service, local newspapers, the fire department and local utility.

4. Contact local utility companies (electric and telephone) to determine if they recorded any lightning strikes on their lines or if they responded to any trouble calls due to outages in the area.

5. Obtain as much information as possible regarding any lightning protection system which may have failed to control a voltage surge resulting from lightning, including the name, address and telephone number of the designer and installer of the system, the date of installation, the manner or type of installation and the effectiveness of such a system to control lightning induced surges in the past.

6. Find out whose responsibility it is to inspect and maintain the lightning protection system and acquire copies of any documents which confirm this (i.e. a lease, contract, utility tariff, etc.)

7. Determine whether or not any contractor or repairman recently worked at or near any of the components of the lightning protection system including the name of the contractor, the date of the work, the type of work performed, the precise location of the work and the reason for the work. Get written documentation.

8. If electronic equipment damaged by a lightning strike has no protective devices, an expert should be consulted to determine if such devices are normally, or should be, incorporated into the design and installation of the equipment.

9. Photograph, acquire and retain any and all physical evidence which indicates damage to property resulting from a lightning strike, including any failed components of a lightning protection system.

10. Obtain plans and blueprints and wiring diagrams of the electrical circuits.

11. In that "foreseeability" may be an issue, obtain as much information as possible with regard to prior lightning strikes and surges, the effects of them on electrical circuitry and equipment, prior discussions among property owners, tenants and contractors with respect to the need for, or installation of appropriate protective devices, and measures taken to provide such protection after those discussions.

12. While the adjuster assigned to the loss will be immediately concerned with the scope of loss and remedial measures to limit additional damages, any and all of the above can be accomplished by counsel. Cozen and O'Connor stands ready, by telephone notice, at 800/523-2900, to consult, make recommendations or personally appear to direct the investigation.

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