Reducing Flood Risks and Insurance Premiums with Venting

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The 2012 Biggert-Waters Act begins to phase-in actuarial flood insurance rates over five years, affecting non-primary “pre-FIRM” and “post-FIRM” rates and is reducing the scope of what is covered under “National Flood Insurance Policy (NFIP) grandfathered” provisions. These changes, plus Federal Emergency Management Agency (FEMA)/NFIP’s remapping projects, will affect all areas of the country, current flood zones and properties. The end result will be flood insurance rates more closely reflecting actual risks and better covering the costs of payouts.

Simple structural retrofit options will help reduce the scope and costs from a flooding event, and there are times that it may also offer partial mitigation credit while satisfying NFIP and local ordinance requirements.

One approach is to raise machinery and equipment servicing the structure, which can include placement on platforms above Base Flood Elevation (BFE), suspension from the ceiling or moving facilities to the next higher floor in the building. On the Elevation Certificate (EC), compare the elevation of these facilities from Line C2e with the BFE reported in B9.

Appropriately flood venting buildings to equalize the weight and pressure of floodwaters against a building’s walls is another method to reduce both flood damage risks and flood insurance costs. Flood openings are highly effective in reducing buoyancy and hydrostatic pressure by allowing the free flow of floodwater into and out of enclosed areas below the BFE. The use of flood vents, called “wet floodproofing,” is the only permissible means of floodproofing residential structures. Non-residential structures may also utilize “dry floodproofing,” although such methods and designs may be costly.

The placement, number and size of flood openings could significantly affect flood insurance costs. Improper placement or insufficient amount of opening area could change the floor serving as the basis for premium rating to cause dramatic rate increases. When the elevation of the structure’s lowest floor — rather than the next floor up — serves as the rated element, premiums can double or more.

The EC reports information about only those flood vents for which the bottom of the opening (where water first enters the structure) is within 1.0 foot of the higher exterior or interior adjacent grade or floor directly beneath that opening. Line A7 of the EC reports the Building Diagram most closely representing the structure to be insured. Lines A8a-d and A9a-d provide details about flood vents or openings, including square footage of enclosed areas, the number of flood openings within one foot of adjacent grade and the total net area of flood openings. When insufficient or improper flood openings are the cause of high premiums, homeowners can realize dramatic savings in insurance through proper placement and proper amount of flood vent openings, often with a return on investment in as little as two years.

There are two kinds of flood openings: non-engineered and engineered. Each must allow free flow of floodwater in both directions without any human intervention. Standard doors, windows and air vents do not satisfy this requirement (unless air vents are broken to remain in the open position). While non-engineered openings may have a screen or grill over them to keep out creatures, they cannot have covers or be blocked in any way. Obstruction to water flow from grills or other screening is subtracted from the overall amount of opening in determining if the opening is compliant for the enclosure area served.

Engineered flood openings are of two types. One is manufactured openings, for which the International Code Council Evaluation Service (ICC-ES) has issued an Evaluation Report (freely available on-line at www.icc-es.org and NFIP accepted). These automatic foundation flood vents have been designed, performance-tested, and certified to mitigate effects of hydrostatic pressure on foundations or other enclosure walls. The alternative is to use unique openings designed for a specific building and individually certified by a licensed design professional as meeting design and performance requirements established by FEMA and the local community.

Photographs accompanying the EC clarify how the selected idealized Building Diagram (Line A7) may vary from actual construction, and they show details of flood opening types and locations. These images help in assessing flood insurance premiums by providing extra detail that standard diagrams and checklists cannot fully express.

Understanding appropriate flood openings and how they are reported on the EC allows you to provide the best service to clients by rating structures correctly. Being able to advise about retrofitting openings to reduce risk and premiums can add value to your services, improving relationships with current clients and earning new ones by referrals. For more information on flood openings, see FEMA’s Technical Bulletin 1, “Openings in Foundation Walls and Walls of Enclosures,” downloadable from www.fema.gov.

Wendy Lathrop is licensed as a professional Land Surveyor in NJ, PA, DE and MD. She is a Certified Floodplain Manager through the ASFPM and owns Cadastral Consulting providing continuing education and floodplain management expertise to industry professionals.