



501 S. Noble Road
Texas City, TX 77591
855-946-3364 | 409-935-5200
409-935-5209 fax
www.AranFranklin.com

April 21, 2017

Re: NFIP Flood Vent Regulations

Subject: Flood Vent Regulations in A-Zones

To whom it may concern:

Aran & Franklin Engineering has provided the following NFIP Flood Vent requirements for the use of our clients and their contractors. It is the responsibility of the client and/or contractor to adhere to these NFIP requirements unless the client/builder's requests and agrees to pay Aran & Franklin Engineering for evaluation of the building for flood vent compliance.

Thank you,

Chandra Franklin Womack, P.E.
President

Flood Vents

A-Zones-NFIP Regulations:

“Require, for all new construction and substantial improvements, that fully enclosed area below the lowest floor that are usable solely for parking of vehicles, building access, or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria: A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.”

Enclosures that Require Openings:

- A. Solid perimeter foundation walls (crawl spaces or under floor spaces)
- B. Solid perimeter foundation walls (below-grade crawl spaces)
Note: Crawl spaces below grade on all sides are considered basements. Basements are not allowed.
- C. Solid perimeter foundation walls (with full-height under floor spaces)
- D. Garages attached to elevated buildings
Note: Garage doors are not approved openings. Separate openings may be installed in garage doors. This only applies to break way wall construction in A-Zones.
- E. Enclosed areas under buildings elevated on open foundations in A-Zones.
- F. Enclosed areas with breakaway wall under buildings elevated on open foundations in A-Zones.
- G. Solid perimeter foundation walls on which manufactured homes are installed.
- H. Accessory structures (Detached garages and storage sheds)

Enclosures that do not require openings:

- A. Manufactured homes with flexible skirting
- B. Back fill stem wall foundations

Minimum Number of Openings:

- A. There must be two openings on at least two walls of each enclosed area
- B. It is recommended that openings be reasonably distributed around the perimeter of the enclosed area unless there is clear justification for putting all openings on just one or two sides (such as in townhouses or buildings set into sloping sites)

Height at Opening above Grade:

- A. The bottom of each opening is to be located no higher than 1 foot above the grade that is immediately under each opening
- B. Any part of the opening above the base flood elevation does not count toward the net open area
- C. If interior and exterior grades are different, the higher of the final interior grade or final exterior grade that is immediately under each opening is used.
- D. Sloping sites with solid perimeter foundation walls.
 - 1. The interior floor along the lower side of a building that is set into a sloping site must be at or above the exterior grade across the entire length of that side of the building; otherwise the enclosure becomes a basement.
 - 2. The bottom of each opening shall be located no higher than 1 foot above the exterior grade immediately below the opening and the net effective area required must be below the base flood elevation.

Non-engineered and Engineered Openings:

- A. Non-engineered opening (or cover and devices) that meet the prescriptive requirements of 1 square inch of net open area for each square foot of enclosed area are acceptable.
- B. Engineered openings (or cover and devices) that are specifically designed and certified by a registered design professional engineer as meeting the required performance and design requirements are acceptable.
- C. Engineered opening (or cover and devices) for which an evaluation report has been issued by the International Code Council is acceptable.
- D. Requirements for non-engineered or engineered opening.

1. Each enclosed area must have a minimum of two openings; if there are multiple enclosed areas, each area must have an opening in its exterior walls.
2. The bottom of each opening must be no more than 1 foot above the higher of the interior or exterior grade immediately under the opening.
3. Any screws, grates, grills, fixed louvers, or other covers or devices must not block or impede the automatic flow of floodwaters into and out of the enclosed area.

Unacceptable Flood Opening:

- A. Standard foundation air ventilation devices:
 1. That can be closed manually unless permanently disabled in the open position
 2. That have detachable solid covers
 3. That are designed to open with temperature unless they are designed to allow for the automatic entry and exit of floodwaters
 4. Windows below the base flood elevation
 5. Garage door and standard doors unless separate openings are installed in them.

Net Open Area of Vents:

- A. The term “net open area” refers to the permanently open area of a non-engineered opening
- B. Manufacturers of devices intended for use as standard air vents typically indicate the number of square inches that each provide for air flow. The same number should be used for the net open area calculation when these devices are installed as non-engineered openings. They cannot have solid covers. Insect screens that do not impede the entry or exit of floodwaters are allowed and do not affect the determination of the net open area.
- C. Local officials may determine that they require more net open area for openings covered with screens.
- D. The IRC and IBC require that flood openings are to be not less than 3 inches in any direction in the plane of the wall. This requirement applies to the hole in the wall, excluding any device that may be inserted such as a typical foundation air vent device.