



# Federal Emergency Management Agency

Washington, D.C. 20472

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MEMORANDUM FOR: FEMA Regional Directors  
Regions I-X

ATTENTION: Natural and Technological Hazards Division Chiefs

FROM: *Arnold L. Collins*  
Donald L. Collins, Acting Administrator  
Federal Insurance Administration

SUBJECT: Floodplain Management Requirements for Certain  
Agricultural Structures - Interim Guidance

Enclosed is a National Flood Insurance Program (NFIP) interim floodplain management guidance document for applying wet floodproofing techniques to certain agricultural structures. In accordance with the guidance, communities may issue variances for the wet floodproofing of structures used solely for agricultural purposes. The types of structures for which a variance may be issued are specified in the guidance document. The community must conduct a case by case analysis on the appropriateness of each variance. In evaluating the agricultural structures, the community must apply the NFIP Variance Criteria contained in 44 CFR 60.6(a). Also, the guidance stipulates specific conditions the community shall attach to ensure that future flood damages are minimized. Following these conditions are additional issues communities should consider as part of a variance review.

This guidance should be provided to communities which have been affected by the Midwest Flood Disaster, in particular, and to other NFIP communities as appropriate. Note that communities need not require a variance for wet floodproofing a structure which is less than 50 percent damaged using either "replacement cost" or "market value" in making this determination. Communities should first determine that a structure has been substantially damaged before requiring the property owner to apply for a variance for a wet floodproofed agricultural structure.

In addition, communities should be provided copies of the Technical Bulletins which are referenced in the attached guidance document as needed. Additional copies of the referenced Technical Bulletins can be obtained through the FEMA publication warehouse. Note that we are in the process of developing a general wet floodproofing technical bulletin for additional guidance.

Also, please note that the attached document is considered "interim" guidance. For the long-term, we intend to address the regulation of certain agricultural structures and certain accessory structures using similar flood protection techniques described in

the attached guidance document through specific floodplain management criteria rather than through the variance process.

If you have any questions regarding the attached guidance, please contact Mike Robinson or Lois Forster at (202) 646-2717.

Enclosure

cc FCO, Disaster Field Offices





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## NATIONAL FLOOD INSURANCE PROGRAM APPLICABLE FLOODPLAIN MANAGEMENT REQUIREMENTS FOR CERTAIN AGRICULTURAL STRUCTURES

### I N T E R I M      G U I D A N C E

#### Background

The National Flood Insurance Program (NFIP) floodplain management regulations require that new or substantially improved (including structures which have incurred "substantial damage") non-residential buildings must be elevated or floodproofed to the Base Flood Elevation (BFE) (100-year flood). To meet the NFIP floodproofing requirements, the structure must be designed so that below the BFE it is made watertight with walls substantially impermeable to the passage of water. This type of flood protection technique is often referred to as "dry floodproofing". Agricultural structures are included under the general NFIP definition of a non-residential structure, and consequently subject to all floodplain management regulations pertaining to new construction or substantially improved/substantially damaged structures.

However, the Federal Emergency Management Agency (FEMA) recognizes that alternative methods of flood protection may be appropriate for certain types of agricultural structures located in wide, expansive floodplains. These alternative methods of protection, commonly referred to as wet floodproofing, allow for the inundation of the building by floodwaters, but minimize damages through use of flood resistant materials and other construction techniques. Only in circumstances when it can be demonstrated that agricultural structures can be designed in such a manner that results in minimal damage to the building and its contents and will create no additional threats to public safety, may a variance be issued.

#### Guidance for Applying Floodplain Management Variance Criteria to Certain Agricultural Structures:

A variance may be issued for the following types of agricultural structures only if the structure is used solely for agricultural purposes in which the use is exclusively in connection with the production, harvesting, storage, drying, or raising of agricultural commodities, including the raising of livestock.

- ▶ Pole frame buildings with open or closed sides used exclusively for the storage of farm machinery and equipment.
- ▶ Steel grain bins and steel frame corn cribs.
- ▶ General purpose barns for the temporary feeding of livestock which are open on at least one side.
- ▶ For livestock confinement buildings, poultry houses, dairy operations, and similar livestock operations, variances may only be issued for structures which were substantially damaged as a result of the Great Midwest Flood of 1993. New construction or substantial improvements



of such structures must meet the floodplain management requirements of 44 CFR 60.3 of the NFIP Regulations for non-residential structures which require that new or substantially improved non-residential buildings must be elevated or floodproofed to the Base Flood Elevation (BFE) (100-year flood).

► Detached garages and storage sheds solely used for parking and limited storage which are no greater than 400 square feet in area.

#### INSURANCE IMPLICATIONS

It must be emphasized that variances are granted with respect to floodplain management requirements and do not affect insurance rates. The Federal Insurance Administration, by statute, must charge insurance rates commensurate with the risk to which a building is exposed. Insurance rates for buildings constructed under variances are generally higher than rates for a comparable structure that is fully compliant. In some instances the additional costs of insuring these buildings, if they are not elevated or floodproofed in accordance with the NFIP requirements, would approach or even exceed the costs of meeting NFIP requirements, and the structure would still be exposed to flood damages. In accordance with the NFIP Regulations, communities shall notify the applicant in writing that the issuance of a variance will result in increased premium rates for flood insurance and that such construction below the BFE increases risks to life and property [44 CFR 60.6(a)(5)].

In determining whether a variance from the local floodplain management regulations may be issued for the above stated agricultural structures, the community must apply the following NFIP variance criteria set forth in the NFIP Floodplain Management Regulations [Title 44 Code of Federal Regulations 60.6(a)]. The responsibility for determining whether an applicant qualifies for a variance rests solely with the community. To properly administer the granting of a variance for these types of agricultural structures at the local level, communities should have variance review procedures in place. These variance procedures must be within the bounds of State enabling law.

Each variance must be decided individually by the community after a case by case analysis of the building's unique circumstances in accordance with the community's floodplain management ordinance. Issuing categories of variances to the NFIP requirements or granting a variance to a group of buildings is contrary to the purposes of the NFIP. The FEMA uses these criteria to evaluate variances granted by a community to determine if they are consistent with sound floodplain management.

#### ----- NFIP VARIANCE CRITERIA

- The applicant has good and sufficient cause for requesting a variance.
- The applicant will suffer exceptional hardship should the variance be denied.



- The variance will not cause increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
  - The variance is the minimum necessary, considering the flood hazard, to afford relief.
- .....

#### CONDITIONS TO VARIANCES ISSUED

In order to minimize flood damages during the base flood and the threat to public health and safety, the community shall attach at a minimum the following conditions to a variance issued for any one of the above stated agricultural structures which are wet floodproofed. These conditions can also be used as guidance to determine whether a building is a candidate for wet floodproofing:

1. Use of the structures must be limited to agricultural purposes in only Zones A, A-30, AE, AO, or AH of the community's Flood Insurance Rate Map (FIRM).
2. The agricultural structure must be built or rebuilt, in the case of an existing building which is substantially damaged, with flood-resistant materials for the exterior and interior building components and elements (i.e., foundation, wall framing, exterior and interior finishes, flooring, etc.) below the BFE in accordance with 44 CFR 60.3(a)(3) of the NFIP Regulations. The NFIP Technical Bulletin 2 Flood-Resistant Materials Requirements provides guidance on what constitutes materials resistant to flood damage and how and when these materials must be used to improve the building's ability to withstand flooding.
3. The agricultural structure must be adequately anchored to prevent flotation, collapse, or lateral movement of the structure in accordance with 44 CFR 60.3(a)(3) of the NFIP Regulations. All of the building's structural components must be capable of resisting specific flood-related forces including hydrostatic, buoyancy, hydrodynamic, and debris impact forces. Where flood velocities exceed 5 feet per second, fast-flowing flood waters can exert considerable pressure on the building's enclosure walls or foundation walls. The NFIP Technical Bulletin 1 Openings in Foundation Walls and the NFIP Technical Bulletin 3 Non-Residential Floodproofing provide guidance on design considerations to address these forces.
4. The agricultural structure must meet the NFIP openings requirement which require that enclosure walls or foundation walls that are subject to the 100-year flood contain openings that will permit the automatic entry and exit of floodwaters in accordance with 44 CFR 60.3(c)(5) of the NFIP Regulations. Guidance is provided in the NFIP Technical Bulletin 1 Openings in Foundation Walls for designing openings in cases where a rate of rise is greater than 5 feet per hour.



5. Any mechanical, electrical, or other utility equipment must be located above the BFE or floodproofed so that they are contained within a watertight, floodproofed enclosure which is capable of resisting damage during flood conditions in accordance with 44 CFR 60.3(a)(3).
6. The agricultural structure must comply with the floodplain management floodway encroachment provisions of 44 CFR 60.3(c)(10) or (d)(3). No variances may be issued for agricultural structures within any designated floodway if any increase in flood levels would result during the base flood.
7. Major equipment, machinery, or other contents must be protected. The rate-of-rise of flood waters or the flood warning time available through an existing, reliable (community based or regionally based) flood warning system must be adequate to provide sufficient lead time to remove and relocate contents to land above the BFE. A community shall make a finding that rate-of-rise of flood waters and/or flood warning is adequate. Protection techniques must be specified.
  - ▶ Protection techniques for contents that cannot be relocated in the event of a flood include constructing protective watertight floodproofed areas within the building, the use of equipment hoists for readily elevating contents, or permanently elevating certain contents on pedestals or shelves above the BFE.
  - ▶ For contents that can be relocated, a determination must be made that property owners can safely remove contents without risk to lives and that the contents will be located to a site out of the floodplain. The site for storing relocated contents should be specified.

Important Issues Communities Need to Consider:

A community which varies individual standards for agricultural structures, but still provides for a level of protection which minimizes flood damages and the threat to public health, safety, and welfare will not jeopardize its NFIP eligibility. However, because granting variances to wet floodproofed agricultural structures is a serious matter, the following are additional considerations a community should address as part of its variance review.

- ▶ The applicant for a variance should demonstrate that such agricultural structures are located in wide, expansive floodplain areas, and that no other alternative location for the agricultural structure exists. Communities should require the applicant to demonstrate that the entire farm acreage consisting of a contiguous parcel of land on which the structure is to be located must be in the Special Flood Hazard Area and that no other alternative locations for the structure are available.
- ▶ The community should consider stipulating a size limit for the structure to be wet floodproofed. Also, the community should take into consideration any existing or future wet floodproofed structures on the site by establishing a minimum number of structures which may

be potentially wet floodproofed at any one farmstead in order to minimize future flood damages.

►The community should consider stipulating minimum distances to levees which are not certified under the NFIP levee criteria in order to protect structures which could be subject to high velocity waters as a result of a levee break or breach.

►In order to achieve the minimum variance from the NFIP standards necessary in order to afford relief, the community should consider a combination of elevation on fill and wet floodproofing.

#### PUBLICATION ORDERING INFORMATION

Publications referenced in this document can be obtained, as needed, from the appropriate FEMA Regional Office. Technical Bulletins can also be ordered from the FEMA publications warehouse at the following address:

Federal Emergency Management Agency  
Publications  
P.O. Box 70274  
Washington, DC 20024  
(202) 646-348-34842