

Chapter 8.5

FLOOD DAMAGE PREVENTION

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ARTICLE I. IN GENERAL

Sec. 8.5-1. General provisions.

- (a) *Statutory authorization.* The Legislature of the State of South Dakota has in (statutes) SDCL 9-36 and 1-18-14, delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry and minimize flood losses. Therefore, the City Commission of Madison, South Dakota, does ordain as follows:

The City of Madison elects to comply with the requirements of the National Flood Insurance Act of 1968 (P.L. 90-488, as amended). The National Flood Insurance Program, established in the aforesaid act, provides that areas of the town having a special flood hazard be identified by the Federal Emergency Management Agency and that floodplain management measures be applied in such flood hazard areas. The National Flood Insurance Program was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994. The National Flood Insurance Program is administered by the Federal Emergency Management Agency, a component of the U.S. Department of Homeland Security.

- (b) *Findings of fact:*

- (1) The flood hazard areas of the City of Madison are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- (2) These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately flood-proofed, elevated or otherwise protected from flood damage also contribute to the flood loss.

- (c) *Statement of purpose.* It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

- (1) To protect human life and health;
- (2) To minimize expenditure of public money for costly flood-control projects;
- (3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

- (4) To minimize prolonged business interruptions;
 - (5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
 - (6) To help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;
 - (7) To ensure that potential buyers are notified that property is in an area of special flood hazard; and
 - (8) To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.
- (d) *Methods of reducing flood losses.* In order to accomplish its purposes, this chapter includes methods and provisions for:
- (1) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
 - (2) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
 - (3) Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
 - (4) Controlling filling, grading, dredging, and other development which may increase flood damage; and
 - (5) Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.
- (Ord. No. 954, Art. I, 23-123-4, 6-14-82; Ord. No. 1479, 7-27-09)

Sec. 8.5-2. Lands to which this chapter applies.

This chapter shall apply to all areas of special flood hazards within the jurisdiction of the City of Madison as depicted on the flood insurance rate maps as provided by the Federal Emergency Management Agency (FEMA).
(Ord. No. 1081, 2-2-89; Ord. No. 1479, 7-27-09)

Sec. 8.5-3. Basis for establishing the areas of special flood hazard.

The areas of special flood hazard identified by the Federal Emergency Management Agency in a scientific and engineering report entitled The Flood Insurance Study for the City of Madison, South Dakota, dated September 2, 2009, with accompanying Flood Insurance Rate Maps (FIRM), dated September 2, 2009 are hereby adopted by reference and declared to be a part of this chapter. The flood insurance study is on file at the Office of the City Finance Officer, City Hall, 116 West Center Street, Madison, South Dakota.
(Ord. No. 1081, 2-2-89; Ord. No. 1479, 7-27-09)

Sec. 8.5-4. Compliance required.

No structure or land shall hereinafter be constructed, located, extended, converted, or altered without full compliance with the terms of this chapter and other applicable regulations.
(Ord. No. 954, Art. III, 23-19, 6-14-82; Ord. No. 1479, 7-27-09)

Sec. 8.5-5. Abrogation and greater restrictions.

This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and other Ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
(Ord. No. 954, Art. III, 23-20, 6-14-82; Ord. No. 1479, 7-27-09)

Sec. 8.5-6. Interpretation.

In the interpretation and application of this chapter, all provisions shall be:

(1) Considered as minimum requirements;

(2) Liberally construed in favor of the governing body; and

(3) Deemed neither to limit nor repeal any other powers granted under state statutes.

(Ord. No. 954, Art. III, 23-21, 6-14-82; Ord. No. 1479, 7-27-09)

Sec. 8.5-7. Warning and disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This chapter does not imply that land outside the area of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the City of Madison, any officer or employee thereof or the Federal Emergency Management Agency, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.

(Ord. No. 954, Art. III, 23-22, 6-14-82; Ord. No. 1479, 7-27-09)

Sec. 8.5-8. Penalties for noncompliance.

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations. Violation of the provisions of this chapter by failure to comply with any of its requirements, including violations of conditions and safeguards established in connection with conditions, shall constitute a misdemeanor. Any person who violates this chapter or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than one hundred dollars (\$100.00) or imprisoned for not more than thirty (30) days, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the City of Madison from taking such other lawful action as is necessary to prevent or remedy any violation.

(Ord. No. 954, Art. III, 23-19, 6-13-82; Ord. No. 1479, 7-27-09)

Sec. 8.5-9. Severability.

If any section, provision, or portion of this ordinance is adjudged unconstitutional or invalid by a court, the remainder of the ordinance shall not be affected.
(Ord. No. 1479, 7-27-09)

Secs. 8.5-10-8.5-19. Reserved.**ARTICLE II. DEFINITIONS****Sec. 8.5-20. General interpretation.**

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.
(Ord. No. 954, Art. II, 23-10, 6-14-82; Ord. No. 1479, 7-27-09)

Sec. 8.5-21. Terms defined.

Appeal means a request for a review of the Floodplain Administrator's interpretation of any provision of this Ordinance or a request for a variance.

Area of special flood hazard means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year.

Base flood means the flood having a one percent chance of being equaled or exceeded in any given year.

Base Flood Elevation (BFE) – Is the water surface elevation of the one (1) percent annual chance flood. The height in relation to mean sea level expected to be reached by the waters of the base flood at pertinent points in the floodplains of coastal and riverine areas.

Basement means any area of the building having its floor subgrade (below ground level) on all sides.

Breakaway wall means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

Building—see structure.

Development means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations located within the area of special flood hazard.

Existing construction means for the purposes of determining rates, structures for which the “start of construction” commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. “Existing construction” may also be referred to as “existing structures.”

Existing manufactured home park or subdivision means a manufactured home park for which the construction of facilities for servicing the lot on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets) are completed before the effective date of this Ordinance.

Existing structures—see existing construction.

Expansion to an existing manufactured home park or subdivision means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, either final site grading or pouring of concrete pads, or the construction of streets).

Flood or flooding means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (1) The overflow of inland or tidal waters and/or
- (2) The unusual and rapid accumulation or runoff of surface waters from any source.

Flood elevation determination means a determination of the water surface elevations of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year.

Flood Insurance Rate Map (FIRM) means the official map on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Floodway – see regulatory floodway

Flood Insurance Study or Flood elevation study means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards.) It is the official report provided by the Federal Emergency Management Agency that includes flood profiles, the Flood Insurance Rate Map, and the water surface elevation of the base flood.

Flood plain or flood-prone area means any land area susceptible to being inundated by water from any source (see definition of “flooding”).

Flood proofing means any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Freeboard means a factor of safety usually expressed in feet above a flood level for purposes of flood plain management. “Freeboard” tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed.

Highest adjacent grade means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Historic Structure means any structure that is:

- (a) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- (b) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- (c) Individually listed on a state inventory of historic places in states with historic reservation programs which have been approved by the Secretary of the Interior; or
- (d) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
 - (1) By an approved state program as determined by the Secretary of the Interior or
 - (2) Directly by the Secretary of the Interior in states without approved programs.

Letter of Map Amendment (LOMA) is an official amendment, by letter, to an effective NFIP map. A LOMA establishes a property's location in relation to the Special Flood Hazard Area (SFHA).

Letter of Map Revision Based on Fill (LOMR) is FEMA's modification to an effective Flood Insurance Rate Map (FIRM). LOMRs are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA).

Conditional Letter of Map Revision (CLOMR) is FEMA's comment on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA). The letter does not revise an effective NFIP map, it indicates whether the project, if built as proposed, would be recognized by FEMA. Building permits cannot be issued based on a CLOMR, because a CLOMR does not change the NFIP map. Once a project has been completed, a revision to the Flood Insurance Rate Map (FIRM) must be done to reflect the project. "As-built" certification and other data must be submitted to support the revision request.

Levee means a man-made structure usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

Levee System means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

Lowest floor means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or

storage, in any area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Sec. 60.3 of the National Flood Insurance Program regulations or this Ordinance.

Manufactured home means a structure, transportable in one or more Sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle" unless they are park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days.

Manufactured home park or subdivision means a parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

Map means the Flood Insurance Rate Map (FIRM) for a community issued by the Agency.

Mean sea level means, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

New construction means, for the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, new construction means structures for which the start of construction commenced on or after the effective date of this Ordinance and includes any subsequent improvements to such structures.

New manufactured home park or subdivision means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.

Recreational vehicle means a vehicle which is:

- (a) Built on a single chassis;
- (b) 400 square feet or less when measured at the largest horizontal projection;
- (c) Designed to be self-propelled or permanently towable by a light duty truck; and
- (d) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Regulatory floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot.

Special flood hazard area: see "area of special flood hazard".

Start of construction includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement, or other improvement was within 180 days of the permit date. The actual start means the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footing, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure means for floodplain management purposes, a walled and roofed building including a gas or liquid storage tank or manufactured home that is principally above ground. *Structure*, for insurance purposes, means:

- (1) A building with two or more outside rigid walls and a fully secured roof that is affixed to a permanent site;
- (2) A manufactured home means a structure, transportable in one or more Sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities.
- (3) A travel trailer without wheels built on a chassis and affixed to a permanent foundation, that is regulated under the community's floodplain management and building ordinances or laws. For the latter purpose, "structure" does not mean a recreational vehicle or a park trailer or other similar vehicle, except as described in paragraph (3) of this definition, or a gas or liquid storage tank.

Substantial damage means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. All applications submitted for improvements on a property within a two year period are considered one project for the purpose of determining substantial improvement.

The term does not, however, include either:

- (1) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety Code specifications which are solely necessary to assure safe living conditions, or
- (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

Variance means a grant of relief from the requirements of this Ordinance which permits construction in a manner that would otherwise be prohibited by this Ordinance.

Violation means the failure of a structure or other development to be fully compliant with the community's flood plain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in Sec. 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) of the National Flood Insurance Program regulations is presumed to be in violation until such time as that documentation is provided.

Water surface elevation means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, (or other datum, where specified) of floods of various magnitudes and frequencies in the flood plains of coastal or riverine areas.
(Ord. No. 1081, 2-2-89; Ord. No. 1407, 6-26-06; Ord. No. 1479, 7-27-09)

Sec. 8.5-22-8.5-29. Reserved.

ARTICLE III. ADMINISTRATION

Sec. 8.5-30. Establishment of development permit; application procedure, required information.

- (a) A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 8.5-3.
- (b) Application for a development permit shall be made on forms furnished by the Floodplain Administrator and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill storage of materials, drainage facilities; and the location of the foregoing. Specifically, the following information is required:
 - (1) Elevation in relation to mean seal level of the lowest floor (including basement) of all new and substantially improved structures;
 - (2) Elevation in relation to mean sea level to which any structure has been flood-proofed;
 - (3) Certification by a registered professional engineer or architect that the flood-proofing methods for any nonresidential structure meet the floodproofing criteria in Section 8.5-4(b); and,
 - (4) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.
 - (5) Maintain a record of all such information.

Approval or denial of a Development Permit by the Floodplain Administrator shall be based on all of the provisions of this ordinance and the following relevant factors:

1. The danger to life and property due to flooding or erosion damage;
2. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

3. The danger that materials may be swept onto other lands to the injury of others;
4. The compatibility of the proposed use with existing and anticipated development;
5. The safety of access to the property in times of flood for ordinary and emergency vehicles;
6. The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems;
7. The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site;
8. The necessity to the facility of a waterfront location, where applicable;
9. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
10. The relationship of the proposed use to the comprehensive plan and floodplain management program for that area.
11. The importance of the services provided by the proposed facility to the community. (Ord. No. 954, Art. IV, 23-28, 6-14-82; Ord. No. 1407, 6-26-06; Ord. No. 1479, 7-27-09)

Sec. 8.5-31. Designation of the administrator.

The City Engineer or another individual who is a Certified Floodplain Manager as appointed by the City Engineer is hereby appointed as Floodplain Administrator and is to administer and implement the provisions of this ordinance and other appropriate sections of 44 CFR (National Flood Insurance Program Regulations) pertaining to floodplain management by granting or denying development permit applications in accordance with its provisions. (Ord. No. 954, Art. IV, 23-29, 6-14-82; Ord. No. 1407, 6-26-06; Ord. No. 1479, 7-27-09)

Sec. 8.5-32. Duties and responsibilities of the administrator.

Duties of the Floodplain Administrator shall include, but not be limited to:

(a) Permit review:

- (1) Review all development permits to determine that the permit requirements of this chapter have been satisfied.
- (2) Review all development permits to determine that all necessary permits have been obtained from those Federal, State or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required.
- (3) Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Section 8.5-42(a) are met.

- (b) Use of other base flood data. When base flood elevation data has not been provided in accordance with Section 8.5-3, the Floodplain Administrator shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from any Federal, State, or other source as criteria for requiring that new construction, substantial improvements, or other development in Zone A are administered in accordance with Section 8.5-41.
 - (c) Information to be recorded and maintained:
 - (1) Record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.
 - (2) For all new substantially improved flood-proofed structures:
 - (a) Verify and record the actual elevation (in relation to mean sea level); and
 - (b) Maintain the flood-proofing certifications required in Section 8.5-30(c).
 - (c) Maintain for public inspection all records pertaining to the provisions of this chapter.
 - (d) Alterations of water courses:
 - (1) Notify, in riverine situations, adjacent communities and the State coordinating agency prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
 - (2) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.
 - (e) Interpretation of FIRM boundaries. Make interpretations where needed, as to the exact location of the boundaries of the areas of special flood hazards; for example, where there appears to be a conflict between a mapped boundary and actual field conditions. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 8.5-33.
 - (f) When a regulatory floodway has not been designated, the Floodplain Administrator must require that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.
- (Ord. No. 1081, 2-2-89; Ord. No. 1407, 6-26-06; Ord. No. 1479, 7-27-09)

Sec. 8.5-33. Variance procedure.

- (a) The Board of Adjustment, as established by the City, shall hear and decide appeals and requests for variances from the requirements of this chapter.
- (b) The Board of Adjustment shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this chapter.

- (c) Those aggrieved by the decision of the Board of Adjustment, or any taxpayer, may appeal such decision to the circuit court, as provided in South Dakota Codified Laws, 11-4-25, 1939.
- (d) In passing upon such applications, the Board of Adjustment shall consider all technical evaluations, all relevant factors, standards specified in other Sections of this chapter, and the following:
 - (1) The danger that materials may be swept onto other lands to the injury of others;
 - (2) The danger to life and property due to flooding or erosion damage;
 - (3) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - (4) The importance of the services provided by the proposed facility to the community;
 - (5) The necessity to the facility of a waterfront location, where applicable;
 - (6) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - (7) The compatibility of the proposed use with existing and anticipated development;
 - (8) The relationship of the proposed use to the comprehensive plan and floodplain management program of that area;
 - (9) The safety of access to the property in times of flood for ordinary and emergency vehicles;
 - (10) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and
 - (11) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.
- (e) Upon consideration of the factors of paragraph (d) above and the purposes of this chapter, the Board of Adjustment may attach such conditions to the granting of variances as it deems necessary to further the purposes of this chapter.
- (f) The Floodplain Administrator shall maintain the records of all appeal actions, including technical information, and report any variances to the Federal Emergency Management Agency upon request.
(Ord. No. 1081, 2-2-89; Ord. No. 1407, 6-26-06)
- (g) Conditions for variances shall be as follows:
 - (1) Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by

lots with existing structures constructed below the base flood level, providing items (1) through (11) of paragraph (d) above have been fully considered. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.

- (2) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure without regard to the procedures set forth in the remainder of this Section.
- (3) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
- (4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (5) Variances shall only be issued upon:
 - (a) A showing of good and sufficient cause;
 - (b) A determination that failure to grant the variance would result in exceptional hardship to the applicant; and
 - (c) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in paragraph (d) above, or conflict with existing local laws or Ordinances.
- (6) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

(Ord. No. 954, Art. IV, 23-31, 6-14-82; Ord. No. 1479, 7-27-09)

Secs. 8.5-34-8.5-39. Reserved.

ARTICLE IV. PROVISIONS FOR FLOOD HAZARD REDUCTION

Sec. 8.5-40. General standards.

In all areas of special flood hazards the following standards are required:

(a) *Anchoring:*

- (1) All new construction and substantial improvements shall be designed (or modified) and adequately anchored to prevent floatation, collapse, or lateral movement of the structure and be capable of resisting the hydrostatic and hydrodynamic loads including the effects of buoyancy.

- (2) All manufactured homes must be elevated and anchored to resist floatation, collapse or lateral movement and be capable of resisting the hydrostatic and hydrodynamic loads. Methods of anchoring may include, but are not limited to use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local requirements for resisting wind forces. Specific requirements may be:
- (a) over-the-top ties be provided at each of the four corners of the manufactured home, with two additional ties per side at intermediate locations, with manufactured homes less than 50 feet long requiring one additional tie per side;
 - (b) frame ties be provided at each corner of the home with five additional ties per side at intermediate points, with manufactured homes less than 50 feet long requiring four additional ties per side;
 - (c) all components of the anchoring system be capable of carrying a force of 4,800 pounds; and
 - (d) any additions to the manufactured home be similarly anchored.

(Ord. No. 1081, 2-2-89)

(b) *Construction Materials and Methods:*

- (1) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- (2) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(Ord. No. 1081, 2-2-89)

(c) *Utilities:*

- (1) All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- (2) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
- (3) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters; and,
- (4) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Editor's note-the heading from this Section was omitted from Ord. No. 1081; it was interpolated from Ord. No. 954, Art. V, 23-37, 6-14-82, which this Ordinance amends.

(d) *Subdivisions Proposals:*

- (1) All subdivision proposals including the placement of manufactured home parks and subdivisions shall be consistent with the need to minimize flood damage;

- (2) All subdivision proposals including the placement of manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage;
 - (3) All subdivision proposals including the placement of manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood damage; and,
 - (4) Base flood elevation data shall be provided for subdivision proposals and other proposed development which contain at least fifty (50) lots or five (5) acres (whichever is less).
 - (5) All proposals for the development of subdivisions including the placement of manufactured home parks and subdivisions shall meet Development Permit requirements of this ordinance.
- (Ord. No. 954, Art. V, 23-37, 6-14-82; Ord. No. 1479, 7-27-09)

Sec. 8.5-41. Specific standards.

In all areas of special flood hazards where base flood elevation data has been provided as set forth in Section 8.5-3, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD or Section 8.5-32(b), Use of Other Base Flood Data, the following provisions are required:

(a) *Residential*

- (1) New construction and substantial improvement of any residential structure shall:
 - (a) be designed so that the first floor is at least one foot above the base flood level. Any basement area, together with attendant utilities and sanitary facilities, below that level shall be designed so that the structure is watertight without human intervention (i.e., the base or sill of all external openings such as windows and doors must be one foot above the 100-year base flood elevation). Basement walls shall be built with the capability to resist hydrostatic and hydrodynamic loads and the effects of buoyancy resulting from the 100-year frequency flood and shall be designed so that minimal structural damage will occur if this design is exceeded. Basements constructed in accordance with these regulations shall not be used for sleeping purposes.
 - (b) be certified by a registered professional engineer that the flood-proofing measures used in the structure satisfy the flood-proofing standards. This certificate shall include the specific elevation (in relation to mean sea level) to which the structure is floodproofed. Such certification shall be provided to the official as set forth in Section 8.5- 32(c)(2). A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Floodplain Administrator.
 - (c) be accepted by the Floodplain Administrator that the structure has been built in accordance with the flood-proofing standards otherwise it shall have the lowest floor (including basement), elevated to one foot above the base flood elevation .

- (d) require within any AO and AH Zone on the FIRM that all new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM (at least two feet if no depth number is specified).
- (e) require within Zones AO and AH adequate drainage paths around structures on slopes to guide flood waters around and away from proposed structures.

Editor's note-the grammatical construction of Ord. No. 1081 requires that 8.5-41(a)(1)(a)(d) begin with verbs logically completing shall. Consequently, 8.5-41(a)(1)(b) has been incorporated into 8.5-41(a)(1)(a); 8.5-41(a)(1)(c) has been re-designated as 8.5-41(a)(1)(b); 8.5-41(a)(1)(d) has been altered for the sake of grammatical correctness and re-designated as 8.5-41(a)(1)(c); 8.5-41(a)(2)(3) have been re-designated as 8.5-41(a)(1)(d)(e).

(b) Non-residential Construction

- (1) New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated to the level of the base flood elevation; or, together with attendant utility and sanitary facilities, shall:
 - (a) be flood-proofed so that below the base flood elevation the structure is watertight with walls substantially impermeable to the passage of water;
 - (b) have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and,
 - (c) be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of this paragraph. Such certifications shall be provided to the official as set forth in Section 8.5-32(c)(2). A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Floodplain Administrator.
- (2) Require within an AO and AH Zone on the FIRM that all new construction and substantial improvements of nonresidential structures (i) have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM (at least two feet if no depth number is specified), or (ii) together with attendant utility and sanitary facilities be completely flood-proofed to that level to meet the flood-proofing standard specified in Section 8.5-41(a)(1).
- (3) Require within Zones AO and AH adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

(c) Openings in Enclosures Below the Lowest Floor

For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

- (1) 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;
- (2) The bottom of all openings shall be no higher than one foot above grade;
- (3) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(d) *Manufactured Homes*

- (1) Manufactured homes shall be anchored in accordance with Section 8.5-40(a)(2).
- (2) All manufactured homes or those to be substantially improved shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the base flood elevation and is securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement. This paragraph applies to manufactured homes on sites outside of a manufactured home park or subdivision, in a new manufactured home park or subdivision, in an expansion to an existing manufactured home park or subdivision, or in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood,
- (3) In A-1-30, AH, and AE Zones, require that manufactured homes to be placed or substantially improved in an existing manufactured home park to be elevated so that the lowest floor is at or above the Base Flood Elevation; OR the chassis is supported by reinforced piers no less than 36 inches in height above grade and securely anchored. (Ord. No. 1081, 2-2-89)

(e) *Recreational Vehicles*

- (1) Recreational vehicles placed on sites within Zones A1-30, AH, and AE on the community's FIRM shall either:
 - (a) be on the site for fewer than 180 consecutive days,
 - (b) be fully licensed and ready for highway use, or
 - (c) meet the permit requirements of Article IV, Section C, and the elevation and anchoring requirements for "manufactured homes" of this section. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

Sec. 8.5-42. Floodways.

Located within areas of special flood hazard established in Section 8.5-3 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

FLOOD DAMAGE PREVENTION

Art. IV. 8.5-42.

- (1) Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge and is certified as such by a registered professional engineer or architect.
- (2) If Section 8.5-42(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of ARTICLE IV.
PROVISIONS FOR FLOOD HAZARDS REDUCTION.
(Ord. No. 1081, 2-2-89)
- (3) The outside storage of debris and potential projectiles such as unlicensed automobiles, trucks and trailers, recreational equipment and vehicles, lawn mowers and other similar equipment, construction debris and materials, tires, white goods, tree limbs, branches and logs, and any other solid waste not placed in the proper container as specified by City Ordinance is prohibited.

This Ordinance is also deemed necessary for the immediate preservation of the public peace, health, and safety of the citizens of Madison and will therefore take effect immediately upon passage and publication.

(Ord. No. 1224, 7-3-96; Ord. No. 1407, 6-26-06; Ord. No. 1479, 7-27-09)

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