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Proposed Updates to City of New Haven Flood Damage Prevention Ordinance
July 25, 2024

1. **Section 2.1.39 - Correct the definition of "Substantial improvement"**

   The Ordinance currently defines Substantial improvement as *"any combination of repairs, reconstruction, alteration, or improvements to a structure taking place during the life of a structure in which the cumulative cost equals or exceeds fifty percent (50%) of the value of the structure before the "start of construction" of the improvement as appraised by the City of New Haven's Assessors Office."*

   The proposed update to this definition changes the lookback period to "over a ten-year period." This change was originally made in 2016, then (probably inadvertently) reversed in the May 2023 revision of the ordinance. This update is necessary because nearly 70% of structures built in New Haven are more than 50 years old (based on Census data). Many are significantly older. Our electronic permitting system is unable to track building permits issued before 2000 and many older homes were improved without permits, making the calculation difficult, if not impossible. Property owners in coastal areas are unable to make further repairs or improvements to relatively old structures, because a lifetime look-back of the improvements made indicates that they have already exceeded the 50% threshold set forth in the current definition. The ten-year look-back will ensure that accurate costs are used, without unduly burdening the property owner with difficult and sometimes unobtainable research responsibilities.

2. **Section 4.3.2 - Specify Coastal A zones in permit procedures**

   The current ordinance reads *"4.3.2 Construction Stage. Upon completion of the applicable portion of construction the applicant shall provide the Building Inspector with an elevation certificate prepared by a Connecticut licensed land surveyor, engineer or architect verifying the as-built lowest floor elevation, defined as the top of the lowest floor (including basement) in A zones; defined as the lowest point of the lowest structural horizontal member (excluding pilings or columns) in V zones."*

   The proposed update to this section is to include Coastal A zones along with V zones in the definition of the as-built lowest floor elevations, as these zones are held to the same standards according to the Building Code.

3. **Section 5.1.1 - Add reference in provisions for Flood Hazard Reduction, General Standards**

   The current ordinance reads "In all areas of special flood hazard the following provisions shall apply: New construction or substantial improvement of any structure shall have the lowest Finished Living Space elevated at least two feet above the base flood elevation. Fully enclosed areas built below the BFE shall only be used for parking, building access or egress, or limited storage."

   A reference to Section 5.3.2, Specific Standards for Fully Enclosed Areas Below Base Flood Elevation, is proposed for clarity.

4. **Section 5.1.14 - Update restrictions on above-ground storage tanks (Section 5.1.14)**

The current ordinance reads: *"New and expanded underground storage tanks and above ground storage tanks are not permitted in the area of special flood hazard."*

The proposed update continues to prohibit underground storage tanks in the Special Flood Hazard Area, but allows above-ground storage tanks to be installed at or above base flood elevation plus two feet as long as they are properly anchored. Murphy of Resilient Land and Water was consultant on this item and noted:

"Section R322.2.4 of the International Residential Code (IRC) states that above-ground tanks "shall be installed at or above the elevation required in R322.2.1 [base flood elevation plus one foot] or shall be anchored to prevent flotation, collapse, and lateral movement." The DEEP Model Floodplain Management Regulations state in Section 5.1.9 that "In A and AE zones, above-ground storage tanks which are located outside or inside of a structure shall be elevated one (1.0) foot above the base flood elevation (BFE) or shall be securely anchored to prevent flotation, collapse or lateral movement under conditions of the base flood. Anchored tanks must have the top of the fill pipe located at least one (1.0) foot above the BFE and have a screw fill cap that does not allow for the infiltration of flood water."

Proposed language includes elevation and anchoring and reads "*Above-ground tanks shall be installed at or above base flood elevation plus two feet and shall be anchored to prevent flotation, collapse, and lateral movement. Anchored tanks must have the top of the fill pipe located at least two feet above the BFE and have a screw fill cap that does not allow for the infiltration of flood water."* The proposed language is a combination of the Connecticut Department of Energy and Environmental Protection (CT DEEP) Model Floodplain Management Regulations and the IRC.

5. Section 5.3.4 – Allow dry flood proofing of non-residential structures

Dry floodproofing measures make a structure watertight below the level to prevent floodwaters from entering. This may include applying a waterproof veneer, such as a layer of brick backed by a waterproof membrane, directly to the outside surface of an existing structure. FEMA does not allow dry floodproofing in residential structures. However, the current ordinance provides no specific considerations for dry flood proofing in any buildings for any use, even non-residential.

The DEEP Model Floodplain Management Regulations state in Section 5.3.1.2 that "In lieu of being elevated, non-residential structures may be dry flood-proofed to one (1.0) foot above the BFE provided that together with all attendant utilities and sanitary facilities the areas of the structure below the required elevation are watertight with walls substantially impermeable to the passage of water, and provided that such structures are composed of structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. A registered professional engineer or architect shall review and/or develop structural design specifications and plans for the construction, and shall certify that the design and methods of construction are in accordance with acceptable standards of practice for meeting the provisions of this section. Such certification shall be provided to the [title of local administrator] on the FEMA Floodproofing Certificate, Form 81-65."

The proposed update includes a section that allows for dry flood proofing to base flood elevation plus two feet in non-residential structures. The updated definition also aligns with the State Building Code.

Proposed language reads: "*5.3.4 Dry Flood Proofing In lieu of being elevated, non-residential structures may be dry flood-proofed to two (2.0) feet above the BFE provided that together with all attendant utilities and sanitary facilities the areas of the structure below the required elevation are watertight with walls substantially impermeable to the passage of water, and provided that such structures are composed of structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. A registered professional engineer or architect shall review and/or develop structural design specifications and plans for the construction, and shall certify*

that the design and methods of construction are in accordance with acceptable standards of practice for meeting the provisions of this section. Such certification shall be provided to the Building Inspector on the FEMA Floodproofing Certificate, Form 81-65."

6. **Section 5.3.2.5 - Add reference to allowance of dry flood proofing**
   The current ordinance reads *"5.3.5.2 All new construction or substantial improvement shall be elevated so that the bottom of the lowest structural horizontal member (excluding pilings or columns) is located no lower than two feet above the base flood level, with all space below the lowest supporting member open so as not to impede the flow of water."*

   The proposed update includes the option of dry flood proofing in this section, in accordance with the provisions of proposed Section 5.3.4.

   Proposed language reads *"5.3.5.2 All new construction or substantial improvement shall be elevated so that the bottom of the lowest structural horizontal member (excluding pilings or columns) is located no lower than two feet above the base flood level, with all space below the lowest supporting member open so as not to impede the flow of water <u>or dry flood proofed</u>"*

7. **Section 5.4, including Sections 5.4.1 – 5.4.1.4) Allow the use of fill for structural support in all SFHA areas besides Coastal High Hazard Areas – Zones VE and Coastal AE**

   The current ordinance reads *"There shall be no fill used as structural support."*

   The State Building Code, National Flood Insurance Program Regulations, and the DEEP Model Floodplain Management Regulations (June 2022) allow fill for structural support landward of the LIMWA (Limit of Moderate Wave Action). These codes and regulations do not specifically say that structural fill is permissible in some flood zones; instead, they say that it is not permissible in VE and Coastal AE zones. Fill should not be not permissible in floodways.

   The proposed update restricts the use of fill in Zones VE and Coastal AE, but allows the use of fill for structural support in other Special Flood Hazard Areas. This is updated to align with State Building Code, National Flood Insurance Program Regulations, and CT DEEP Model Floodplain Management Regulations.

8. **Update definition of "Buildings on the Historic Register" for Specific Situation Variances (Section 6.4.1)**
   The current ordinance reads *"Flood Damage 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 without regard to the procedures set forth in the remainder of this section, except for Section 6.5.3.1—6.5.3.4 and provided the proposed reconstruction, rehabilitation or restoration will not result in the structure losing its historical character.*

   The proposed update adds "a local inventory of historic places" to this definition in order to remain consistent with the definition in Section 2 of the ordinance.