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Height Restrictions on Elevated Residential Buildings in Connecticut Coastal Floodplains

William R. Rath
Legal Research Fellow

Christopher P. Kelly
Legal Writing Fellow

Kristie A. Beahm
Legal Writing Fellow

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Executive Summary

Elevating buildings above flood levels is a common and effective way to minimize damage from floodwaters, and is a key flood protection provision of the National Flood Insurance Program (NFIP). Since all Connecticut municipalities participate in the NFIP, all have enacted floodplain regulations that meet or exceed the NFIP requirement to elevate habitable portions of new and substantially improved residential structures to or above the "Base Flood Elevation" (BFE) shown on federal flood insurance rate maps. The Connecticut State Building Code also specifies floodplain building elevation requirements, and in some cases the building code elevation requirements exceeds those of the NFIP. Supplementing these mandatory requirements are incentives under federal disaster relief and flood insurance programs that make it attractive for homeowners to voluntarily elevate new and existing residential structures to levels even higher than the regulatory minimums.

Unfortunately, conflicts can arise when a requirement or desire to raise a building above the BFE runs up against a zoning regulation that limits how high the building can rise above the surrounding grade. Most Connecticut shoreline communities simply use their existing zoning variance process to resolve such conflicts on a case-by-case basis. However, eight shoreline communities have adopted floodplain zoning ordinances that can accommodate some increase in height above the usual limit without going through the complicated and time-consuming variance process. These communities use one of two different methods to facilitate this accommodation:

- allow additional height above the surrounding grade, or
- allow additional height above a specified floodwater elevation.

This paper describes these two approaches and Appendix A provides the text of the floodplain height ordinances in the eight communities that make such accommodations. Shoreline communities interested in enhancing coastal resilience should consider whether similar ordinances are appropriate for their situations.

I. Introduction

Coastal flooding represents a tremendous threat to Connecticut infrastructure. The Federal Emergency Management Administration (FEMA) estimates that a "100 year flood" in the four Connecticut Shoreline counties could cause a staggering $3,571,200,000 in damage to residential structures alone.[1] To further exacerbate this problem, climate scientists estimate that by 2100 the inundation levels of this 100 year flood will revisit the Connecticut coast once every seventeen years if greenhouse gas emissions continue at current rates.[2]

The National Flood Insurance Program (NFIP) offsets some of the financial risk that these floods pose to homeowners.[3] This program, administered by the Federal Emergency Management Agency (FEMA), makes federal flood insurance available to communities that impose a minimum standard of floodplain management regulation, generally imposed through zoning ordinances.[4] Every Connecticut municipality participates in the NFIP.[5]

Under the NFIP, participating municipalities must create land use ordinances that require habitable portions of new or substantially improved residential structures within the Special Flood Hazard Area[6] to be elevated to or above the Base Flood Elevation (BFE)[7] shown on Flood Insurance Rate Maps (FIRM).[8] This elevation requirement is intended to minimize flood damage by keeping buildings above anticipated flood levels.[9]

The FEMA elevation specifications reflect the minimum requirements of the NFIP. Property owners may wish to raise their buildings even higher than these minimum elevations to further reduce the risk of flood damage and to

reduce their flood insurance premiums.[10] Municipalities may also impose higher elevation requirements to minimize property loss during flood events that exceed historical highs or to accommodate projected sea level rise. Complicating the process of elevating buildings located in floodplains are zoning ordinance height restrictions that limit the distance between grade (ground elevation) and a high point on the building, such as ultimate roof height.[11] When floodplain property owners elevate existing buildings to or above the BFE, an otherwise compliant building may exceed the height limit set by a local zoning ordinance, squeezing property owners between two different regulatory requirements.

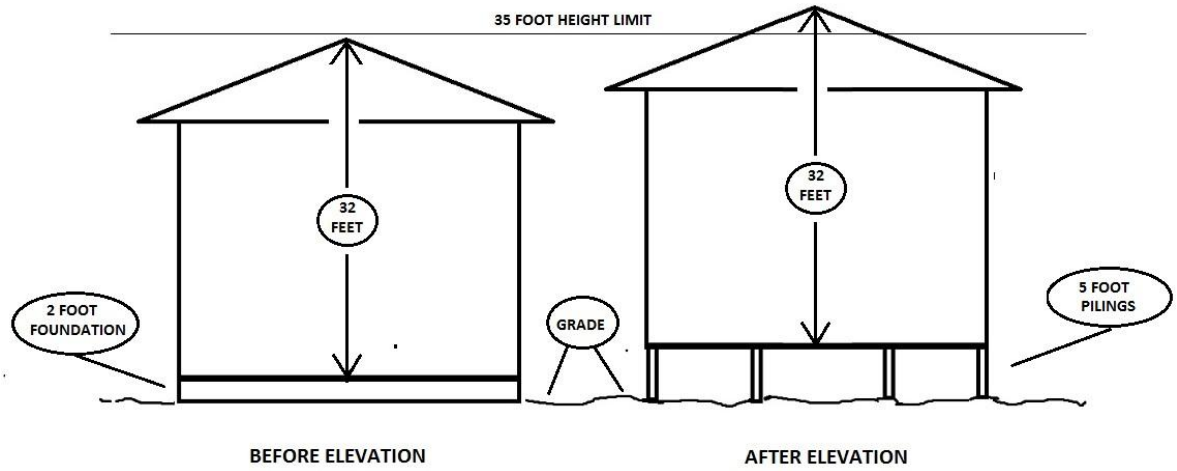

Figure 1 – Shoreline House Before and After Renovation

For example, assume the shoreline house in Figure 1 is located in a residential neighborhood where the zoning height limit is 35 feet above grade. This particular house is 32 feet tall from the bottom of the lowest habitable floor to the peak of the roof and rests upon a foundation that is two feet above grade. The top of the house is therefore 34 feet above grade, just below the 35-foot limit. To protect the house from flood damage, the owner wants to hire a contractor to replace the foundation with pilings and raise the lowest habitable floor to the BFE, which is five feet above grade. Unfortunately, the work would raise the peak of the roof to 37 feet above grade, in violation of the 35-foot zoning height limit. Without relief from this height limit, the owner would have to modify the roof of the house to raise the lowest habitable floor to the BFE. Such a modification would add to the expense of the project and could put the project out of financial reach.

To accommodate this situation, a municipality can either grant variances on a case-by-case basis or pass an ordinance raising the height limit for elevated buildings in floodplains. A municipality may prefer variances to retain control over individual circumstances, but the variance process is time consuming and can be expensive as it requires an individual analysis, a detailed application, and a formal public hearing.

Applicants for a variance must demonstrate to a zoning board of appeals that the variance will not substantially affect the comprehensive zoning plan and that strict adherence to the letter of the zoning ordinance will cause an unnecessary and unusual hardship.[12] The applicant must also demonstrate that the variance is required because of "some peculiar characteristic of his property."[13] These can be difficult requirements to meet when the applicant is one of many similarly situated floodplain property owners. Furthermore, the process can become even more expensive and time consuming for the owner if an aggrieved abutter contests a variance approval and appeals the board's decision to a superior court.[14] The possibility of appeal adds another degree of uncertainty for property owners as the court may find that the variance was improperly granted and reverse the decision of the board.[15]

If a municipality wishes to create a more efficient process it can enact an ordinance to accommodate the increased height of elevated floodplain buildings without going through the variance procedure. While such an ordinance many reduce the municipality's control over individual building elevation projects, it may represent a more efficient use of municipal resources. It will also reduce the time, expense, and uncertainties that the variance process imposes on floodplain building owners, which may encourage more owners to elevate floodplain buildings above dangerous floodwaters.

The remainder of this paper addresses the means by which shoreline communities can use ordinances accommodate increased building heights. Section II describes the legal authority that allows Connecticut municipalities to establish zoning ordinances and grant variances from those ordinances. Section III describes how Connecticut shoreline communities handle zoning height limits in floodplains and identifies the communities that have adopted ordinances to accommodate some increase in floodplain building height without resorting to the variance process. Section IV highlights some of the considerations involved when making decisions on a floodplain building height ordinance. Finally, the conclusion in Section V is followed by Appendix A, which provides the text of the regulations in the eight communities that use ordinances rather than the variance process to accommodate increased building heights in floodplains.

II. Legal Authority

The legal authority for communities to regulate land use through zoning ordinances is long and well established. The threshold case affirming this authority was in 1926, when the United States Supreme Court held that local land use zoning is a valid exercise of police power as long as the zoning ordinances are not "clearly arbitrary and unreasonable, having no substantial relation to the public health, safety, morals, or general welfare."[16]

In Connecticut, municipalities derive their zoning authority from the state through a general zoning enabling act passed in 1925 and revised and reenacted in 1949.[17] These acts, now codified in Title 8 of the Connecticut General Statutes, empower municipalities to establish zoning commissions and enact zoning ordinances that regulate land use and establish dimensional requirements, including building height.[18] In fact, Section 8-2 of the Connecticut General Statutes specifically allows zoning ordinances that regulate the "height, number of stories and size of buildings and other structures."[19]

Communities that adopt zoning ordinances must also establish a zoning board of appeals empowered to grant variances where special circumstances unique to a particular parcel of land would cause "exceptional difficulty or unusual hardship" if the zoning ordinances were enforced as written.[20] This variance process provides an important protection for land owners who, through no fault of their own, are confronted with unique circumstances that don't allow them to comply with certain provisions of local zoning ordinances.

The combination of explicit delegation of state authority and access to a variance process provides a strong legal authority for zoning ordinances that regulate building height. This authority is so strong, in fact, that the municipal authority to regulate building heights through zoning ordinances has never been challenged in the Connecticut Appellate or Supreme Courts.

III. Current Practices in Connecticut Coastal Municipalities

Eight of Connecticut's twenty-four coastal towns and cities have ordinances that work to reconcile NFIP elevation standards with building height zoning limits. These municipalities are Bridgeport, Fairfield, Greenwich, Guilford,

Norwalk, Stamford, Waterford, and Westport. As shown in the text of the ordinances in Appendix A, these communities use one of two methods to accommodate the increased height of elevated buildings in flood zones:

- allow additional height above grade, or
- allow additional height above a specified floodwater elevation.

Both of these methods are described below.

Additional Height Above Grade

The simplest method used to reconcile height limits with elevation requirements in floodplains is to grant additional height above grade to elevated structures in those areas. The most straightforward example of this method is in Norwalk, where residential structures in flood zones are permitted an additional one foot of height.[21]

Other towns allow additional height above grade in a more conditional manner that may accommodate greater flood depths. In Westport, for every one foot between average grade and BFE, an additional foot may be added to building height, up to a maximum of five additional feet above the ordinary limit for height above grade. [22] Fairfield employs a similar system, where one foot of additional height is allowed for every two feet of difference between grade and BFE with no other limit on height above grade.[23]

Additional Height Above a Specified Floodwater Elevation

The municipalities described above measure building height in relation to the grade at the base of the building, which is the usual manner of measuring building height. However, some coastal municipalities have adopted a different starting point to measure the height of buildings in floodplains. Instead of starting at the surrounding grade, these municipalities start height measurements at an elevation related to the anticipated depth of floodwaters.

In Stamford, the starting point for floodplain building height measurement is BFE.[24] Therefore, if a residential building is in a coastal flood area with a zoning limit of thirty-five feet above grade and the BFE is three feet above grade, the building may be elevated until the highest point of the building is thirty-five feet above BFE, or thirty-eight feet above grade. There are limits, however, to how much extra height above grade can be granted under this ordinance. In Stamford, an elevated building in a floodplain may not exceed the prevailing above-grade height limit by more than five feet irrespective of the BFE.

Other towns have chosen different elevations related to the BFE as the starting point for building height measurement. In Guilford, the limits for floodplain building heights are measured from four feet below BFE or from grade, whichever is higher, with a maximum height of 40 feet above grade.[25] In Greenwich, the limits for floodplain building heights are measured from two feet below BFE or from grade, whichever is higher, with no separate limit on height above grade.[26]

The floodplain building height accommodations are more generous in Bridgeport and Waterford. In Bridgeport, the limits for floodplain building heights are measured from one foot above BFE or from grade, whichever is higher, up to a maximum of five additional feet above the ordinary height limit.[27] In Waterford, the limits for floodplain building heights are measured from two feet above BFE with no limit on height above grade.[28]

IV. Considerations

When choosing whether to enact an ordinance that will allow buildings in flood zones to exceed their local building height limits, a zoning commission's decision will likely be dictated by local preferences and concerns. Among those are the commission's preferences for how much variation to permit in maximum building heights. Some municipalities appear to take a more conservative stance in permitting variations in maximum building heights, while others are more generous. Additionally, municipalities may differ in elevation specifications for residential structures in floodplains. While a majority of shoreline communities specify the NFIP minimum elevation of requirement of BFE, a significant minority of municipalities have chosen to exceed the minimum requirements and specify elevation requirements one foot or more above BFE.[29]

Municipalities should also be aware that elevating a building increases the chance of wind damage to the building.[30] Municipalities considering ordinances related to elevating existing residential buildings in flood zones should also consider a recommendation or requirement to evaluate and, if necessary, retrofit these buildings in accordance with FEMA Publication P-804, "Wind Retrofit Guide for Residential Buildings."

V. Conclusion

Elevating residential structures above floodwaters is a common and effective measure to reduce flood damage, and elevation to at least the BFE is required for new construction and substantial improvements in communities that participate in the NFIP. However, property owners facing significant flood depths may encounter a regulatory impasse when elevating a structure above floodwaters violates municipal zoning height limits. Eight of Connecticut's shoreline municipalities have ordinances that bring some relief in such circumstances, either by allowing additional height above grade or by starting height measurements from an elevation related to flood depth instead of the surrounding grade. The other sixteen shoreline municipalities do not have ordinances that reconcile building height limits with floodplain elevation requirements. For property owners in those communities, a variance is the only relief when a floodplain building elevation project would cause building height to exceed zoning limits. These sixteen communities should consider height-accommodating ordinances to minimize the need for expensive, time-consuming, and uncertain variance applications and thus encouraging floodplain residents to elevate buildings above dangerous floodwaters.

Appendix A

Floodplain Building Height Accommodation Ordinances
(Effective September 1, 2017)

Connecticut Shoreline Communities

Bridgeport - BRIDGEPORT, CONN., ZONING & SUBDIVISION REG. Table 3, note 8 (2015).

> "In flood plain areas where the lowest floor of the building is elevated to meet the flood damage prevention standards, the maximum total building height shall be measured from the Base Flood Elevation (BFE)+1' elevation provided that the resulting height of the building is not more than five (5) feet greater than the maximum building height permitted in the RCC Zone."

Fairfield - FAIRFIELD, CONN., ZONING REG. § 5.2.2 (2017).

> "Two and one half (2 ½) stories or thirty-two (32) feet, whichever is less except that dwellings located within the 100 year flood zone are allowed one foot of additional height for every two (2) feet of vertical distance between existing average grade and the base flood elevation."

Greenwich - GREENWICH, CONN., BLDG. ZONE REG. § 6-139.1(c)(22.1) (2017).

> "Grade Plane, Flood Zone – A reference plane from which to measure the number of stories, height, and floor area of dwelling units in residential zones within the Flood Hazard Overlay Zone. The flood zone grade plane shall be measured from two feet (2') below the Base Flood Elevation, or the grade plane as defined under Section 6-5(a)(26), whichever is higher. If the structure complies with Section 6-139.1(f)(11)(A and D), the floor area below the flood zone grade plane shall be excluded. The area below the flood zone grade plane shall not count as a story provided there is no more than 7' from the flood zone grade plane to the top of the finished floor."

Guilford - GUILFORD, CONN., ZONING CODE § 273-91(O) (2016).

> "For buildings or structures in Flood hazard areas as defined by FEMA, average height shall be measured from the Base Flood Elevation minus four (4) feet or average grade whichever is higher. No building shall be higher than 40 ft. total height from average grade."

Norwalk - NORWALK, CONN., BLDG. ZONE REG (2017).

> *The Norwalk limits for building height and bulk are set forth in schedules that are not reproduced here. Those schedules add one foot to the height limits for residential structures in flood zones. See the Norwalk Connecticut Building Zone Regulations, Schedule limiting height and bulk of buildings - Residential (Part 1) (2017).*

Stamford - STAMFORD, CONN., ZONING REG. § 3(A)(16)(b) (2016).

> "Where a residential building is to be built, altered or reconstructed in order to comply with the Minimum Elevation Standard of Article III, Section 7.1 Flood Prone Area Regulations, and such building is located fully or partially within the Coastal Boundary as defined in Article III, Section 7(T) Coastal Area Management Regulations, building height may be measured from the Base Flood Elevation applicable to the residential building, provided that the resulting height of the building measured from average grade is not more than five (5) feet greater than the maximum building height permitted in the applicable Zoning District."

Appendix A

Waterford - WATERFORD, CONN., ZONING REG. § 1.11.2 (2017).

> "Buildings located in an F.E.M.A Designated Flood Zone AE and VE or both, the height shall be measured from the Base Flood Elevation (BFE) plus Two (2) feet as shown on the latest version FIRM (Flood Insurance Rate Map)."

Westport - WESTPORT, CONN., ZONING & SUBDIVISION REG. § 6-3.3 (2017).

> "Building Height for principal buildings may be increased by up to an additional five feet; (Maximum of 31') for an existing or new structure located within the Special Flood Hazard Area specifically, when such structure is proposed have its first finished floor elevated to at least the Base Flood Elevation has no basement or cellar below the BFE and in the AE Zone is designed to be fully compliant with §31-11.5.2 (Elevated Buildings). Structures in the VE zone shall comply with all the requirements in §31-11.3.5. One additional foot of Building Height as measured from average grade shall be permitted for each foot that the average grade is below the Base Flood Elevation up to a maximum of five feet. Wet flood proofed enclosed spaces below the first floor with a head room of five feet or less shall not be considered a story. (See §5-2 Definition of Crawl Space).

Endnotes

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DISCLAIMER: *This white paper addresses issues of general interest and does not give any specific legal advice pertaining to any specific circumstance. Parties should obtain advice from a lawyer or other qualified professional before acting on the information in this paper.*

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[1] ADAPTATION SUBCOMM. TO THE GOVERNOR'S STEERING COMM. ON CLIMATE CHANGE, THE IMPACTS OF CLIMATE CHANGE ON CONNECTICUT AGRICULTURE, INFRASTRUCTURE, NATURAL RESOURCES AND PUBLIC HEALTH 88 (2010).
[2] *Id.* at 86.
[3] *National Flood Insurance Program*, DEP'T OF ENERGY & ENVTL. PROT. [hereinafter *DEEP-NFIP*], http://www.ct.gov/Deep/cwp/ view.asp?a=2720&Q=446992&deepNav_GID=1654 (last visited June 1, 2017).
[4] *Id*.
[5] *Id*.
[6] Special Flood Hazard Area (SFHA) is an area having special flood, mudflow or flood-related erosion hazards and shown on a Flood Hazard Boundary Map (FHBM) or a Flood Insurance Rate Map (FIRM) Zone A, AO, A1-A30, AE, A99, AH, AR, AR/A, AR/AE, AR/AH, AR/AO, AR/A1-A30, V1-V30, VE or V. *Definitions*, FED. EMERGENCY MGMT. AGENCY, https://www.fema.gov/national-flood-insurance-program/definitions (last visited June 8, 2017). In common parlance, this is the area within the 100 year floodplain.
[7] Base Flood Elevation (BFE) is the elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year. *Definitions*, *FEMA*, https://www.fema.gov/national-flood-insurance-program/definitions (last visited June 8, 2017). BFE is sometimes called the "100 year flood" elevation. *Designing for Flood Levels Above the BFE*, FED. EMERGENCY MGMT. AGENCY 1 (2010), https://www.fema.gov/media-library-data/20130726-1537-20490-8057/fema499_1_6_rev.pdf.
[8] *Base Flood Elevation, Definition/Description*, FED. EMERGENCY MGMT. AGENCY, https://www.fema.gov/base-flood-elevation (last visited June 8, 2017).
[9] *DEEP-NFIP*, *supra* note 3.
[10] FED. EMERGENCY MGMT. AGENCY, DESIGNING FOR FLOOD LEVELS ABOVE THE BFE, TECHNICAL FACT SHEET 1.6, 1 (2010).
[11] *See, e.g.*, Greenwich, Conn., Mun. Code, art. I, §§ 6-5(a)(9), 6-40(b) (2017).
[12] Bloom v. Zoning Bd. of Appeals of the City of Norwalk, 658 A.2d 559, 564 (Conn. 1995).
[13] *Id*.
[14] CONN. GEN. STAT. § 8-8 (2012).
[15] *See, e.g.*, Amendola v. Zoning Bd. of Appeals of the City of West Haven, 129 A.3d 743 (Conn. 2015).
[16] Vill. of Euclid, Ohio v. Ambler Realty Co., 272 U.S. 365 (1926).
[17] 1925 Conn. Pub. Acts 4037.
[18] CONN. GEN. STAT. § 8-2 (2017).
[19] *Id*.
[20] CONN. GEN. STAT. § 8-6 (2017).
[21] Norwalk, Conn., Bldg. Zone Reg., Schedule Limiting Height and Bulk of Buildings, Residential (Part 1) (2017).
[22] Westport, Conn., Zoning & Subdivision Reg. § 6-3.3 (2017).
[23] Fairfield, Conn., Zoning Reg. § 5.2.2 (2017).
[24] Stamford, Conn., Zoning Reg. § 3(A)(16)(b) (2016).
[25] Guilford, Conn., Zoning Code § 273-91(O) (2016).
[26] Greenwich, Conn., Mun. Code, art. X, § 6-139.1(c)(22.1) (2017).
[27] Bridgeport, Conn., Zoning & Subdivision Reg. Table 3, note 8 (2015).
[28] Waterford, Conn., Zoning Reg. § 1.11.2 (2017).
[29] *E.g.*, Waterford, Conn., Zoning Reg. § 14a.5(8) (2017).

[30] Jeffrey Weston, Fang Pan & Wei Zhang, Resilience Study of Elevated Coastal Residential Buildings Subject to Strong Winds, The 13th Americas Conference on Wind Engineering (May 24, 2017) (unpublished), http://www.engr.uconn.edu/~wzhang/Pdf/C201705AAWEWestonBuilding.pdf.