

Communities participating in the Community Rating System of the National Flood Insurance Program may receive credit points for enforcing regulations in Coastal A Zones that exceed those required by the NFIP. This handout explains the rationale for this credit and the ways in which communities may qualify for the credit points. Additional copies of this handout are available from your ISO/CRS Specialist or by e-mailing NFIPCRS@ISO.com.

CRS Credit for Areas with Moderate Wave Action and Coastal A Zones

Background

The term “Coastal A Zone” refers to that portion of the coastal Special Flood Hazard Area (SFHA) located landward of the V Zone and seaward of the line known as the Limit of Moderate Wave Action (LiMWA). The LiMWA is determined based on the landward limit of the 1% annual chance coastal flood that can support a 1.5-foot wave. The rationale for establishing Coastal A Zones was based on post-storm field studies that have shown that flood hazards in Coastal A Zones more closely resemble those in V Zones than those in riverine A Zones, and that building damage in Coastal A Zones is consistent with that observed in V Zones, not that in riverine A Zones.

In recognition of the problem, the CRS encourages local governments to adopt regulations that require the foundation design in the Coastal A Zone to comply with the more stringent requirements applied to V Zones.

New coastal Flood Insurance Rate Maps (FIRMs) will show the LiMWA as an informational layer on the FIRM. The National Flood Insurance Program (NFIP) A-Zone regulations will continue to be used as the minimum building standards for structures located between the V Zone and the LiMWA (that is, the Coastal A Zone).

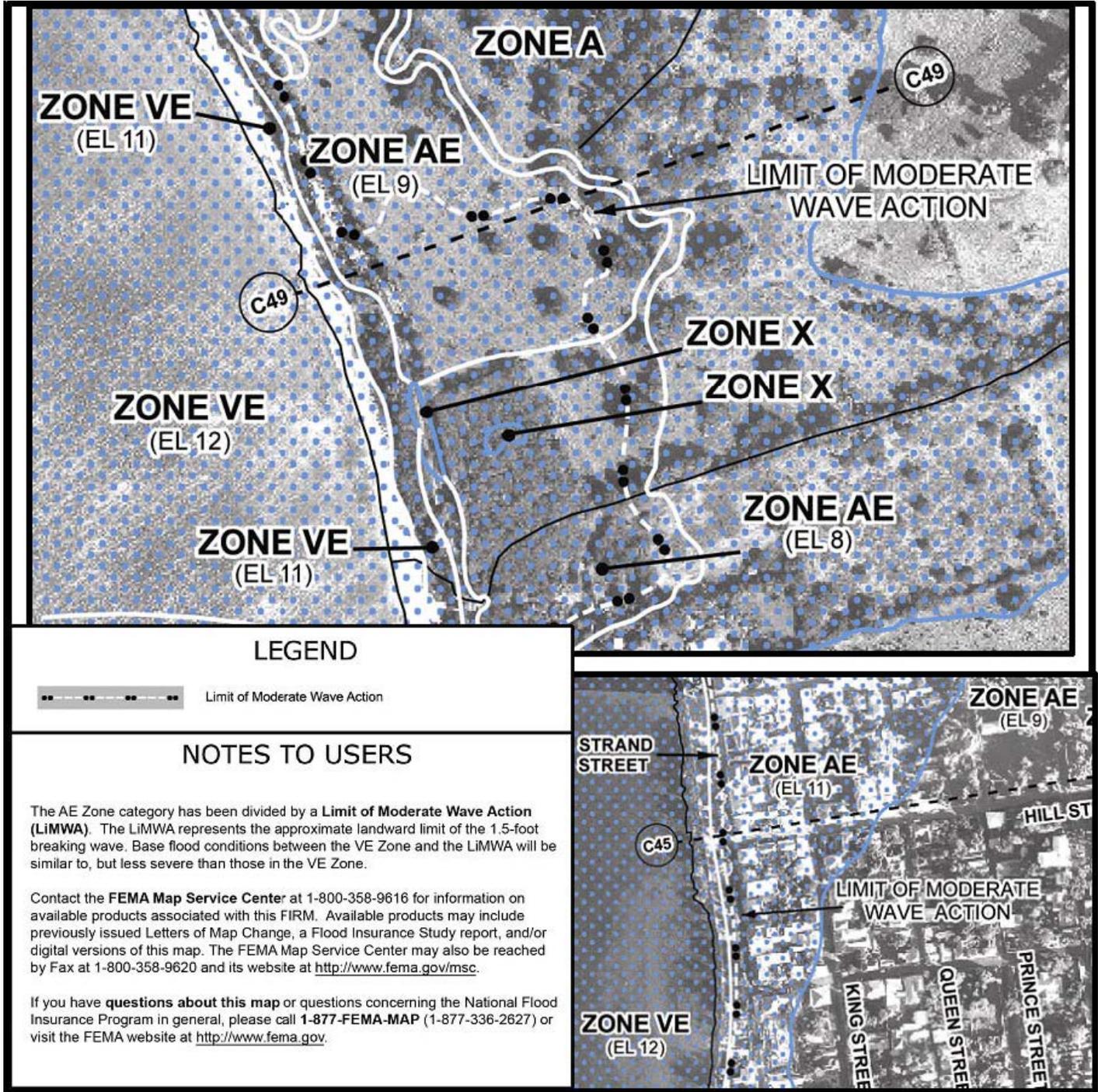
NFIP building standards in Coastal A Zone areas are identical to those in riverine A Zones. A coastal building in an area subject to a 2.9-foot breaking wave during the base flood is only required to comply with A-Zone building standards—despite the fact that breaking waves of that size are capable of destroying or heavily damaging typical residential wood-frame buildings in an A Zone.

Up to 250 CRS points are available to local governments that enforce all NFIP V-Zone standards in the Coastal A Zone. The CRS offers more credit to local governments that extend V-Zone construction standards landward of the LiMWA.



Mapping the Coastal A Zone

For all new detailed coastal studies, the landward limit of waves 1.5 feet high will be delineated on the FIRMs and included in the DFIRM database as an informational layer with no NFIP floodplain management requirements or special insurance ratings.



Map showing the LiMWA line.

CRS Credit for Coastal A Zone Regulations

The Coastal A Zone design and construction practices described here are not mandated by the NFIP, but are recommended for communities that wish to adopt higher floodplain management standards. CRS credit is available for communities that regulate their Coastal A Zone (CAZ) in this way. The 2006 *International Building Code* references the American Society of Civil Engineers' Flood Resistant Design and Construction standard (ASCE 24-05), which has specific design requirements that apply to areas that may be affected by waves higher than 1.5 feet (ASCE 24-05 refers to these areas as Coastal A Zones). In addition, every Federal Emergency Management Agency (FEMA) coastal construction publication since the June 2000 *Coastal Construction Manual* (FEMA 55) has recommended the use of VE-Zone construction practices in areas subject to wave heights exceeding 1.5 feet.

Up to 650 CRS credit points are available to local governments that regulate their entire SFHA or regulatory floodplain based on V-Zone building standards. The 650 credit points are subject to an impact adjustment described on page 5. The credit points are allocated based on the schedule to the right, and are explained below.

<u>Coastal A Zone Regulation</u>	<u>Potential Points</u>
a. Foundation Design	225
b. Engineers Certification	125
c. Reference Elevation	100
d. Landward of Mean High Tide	25
e. Protect Dunes and Mangroves	25
f. Prohibit Enclosures	<u>150</u>
CAZ Total	650

a. Foundation Design

Post-storm damage assessments have documented that slab-on-grade foundations elevated over structural fill, various types of enclosed perimeter foundations, and masonry pier foundations have been prone to failure in Coastal A Zones. In contrast, open foundations free of obstruction and consisting of piles or columns with adequate embedment to resist scour, have proven to be less prone to failure.

The CRS provides up to 225 points for regulations that prohibit the use of fill for structural support, require buildings located in Coastal A Zones to be elevated on pilings or columns, and require enclosures below the base flood elevation to be free of obstruction.

Foundation Design—Up to 225 points with all of the following requirements:

1. Buildings on pile or column foundations.
2. Foundation and structure attached to resist wind and water loads.
3. Areas below the lowest floor are free of obstruction.
4. Use of fill for structural support is prohibited.

b. Engineer's Certification

Up to 125 points are provided if regulations require that the building design be certified by a licensed engineer or architect that it will resist flotation, collapse, and lateral movement resulting from combined wind and hydrostatic loads.

Structural Design, Specifications and Plans—Up to 125 points

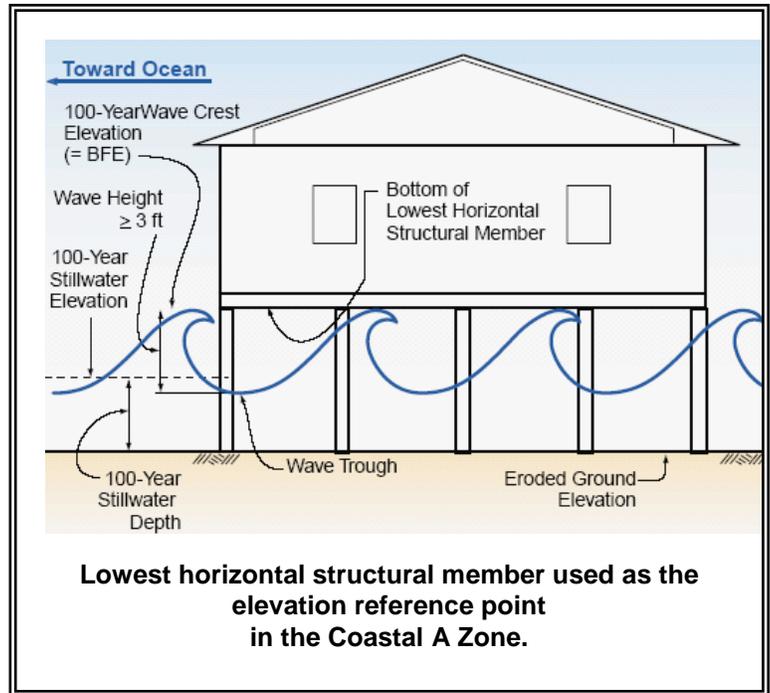
Engineer's certification of structural designs and methods of construction is required.

c. Reference Elevation

In inland areas, experience has shown that floods damage areas of buildings not elevated above the flood level and destroy the contents of those areas. In coastal areas, wave action causes even more damage, often destroying enclosed building areas below the flood level (and any building areas above the flood level that depend on the lower area for structural support). Once waves rise above the lowest structural member in a V Zone or Coastal A Zone, the elevated portion of the building is likely to be severely damaged or destroyed.

The CRS encourages local governments to adopt Coastal A Zone regulations that require all newly constructed, substantially damaged, and substantially improved buildings to be elevated on pilings, posts, piers, or columns so that the bottom of the lowest horizontal structural member of the lowest floor (excluding the vertical foundation members) is at or above the base flood elevation.

The CRS provides up to 100 points of credit when a local government uses the bottom of the lowest horizontal member as the elevation reference point within its Coastal A Zone.



d. Location landward of mean high tide

The single most common and costly siting mistake made by designers, builders, and owners is failing to consider future erosion and slope stability when an existing coastal home is purchased or when land is purchased and a new home is built. Purchase decisions—or siting, design, and construction decisions—based on present-day shoreline conditions often lead to future building failures. Over a long period of time, owners of poorly sited coastal buildings may spend more money on erosion control and erosion-related building repairs than they spent on the building itself.

Local governments that require Coastal A Zone buildings along a shoreline to be located landward of the reach of mean high tide can receive up to 25 CRS credit points.

CRS credit is available when regulations require all newly constructed buildings to be located landward of the reach of mean high tide (i.e., the mean high water line) along all shorelines within the Coastal A Zone.

e. Alteration of sand dunes or mangrove stands

The vulnerability of a barrier island to storm overwash and inundation is determined, in part, by the elevation of the dune crest, the elevation of the base of the dune, and the volume of the dune. If there is no dune, the barrier island's vulnerability to overwash is determined, in part, by the elevation and width of the beach berm.

CRS credit is available where local regulations prohibit the alteration of sand dunes and mangroves if those alterations would increase potential flood damage. Removing sand or vegetation from, or otherwise altering, a sand dune may increase potential flood damage; therefore, such actions must not be carried out without the prior approval of a local official.

Sand Dune and Mangrove Protection

Up to 25 CRS credit points are available to local governments that prohibit the alteration of sand dunes or mangrove stands within Coastal A Zones.

f. Enclosures

Floodborne debris produced by coastal floods and storms typically includes decks, steps, ramps, breakaway wall panels, fuel tanks, vehicles, and a variety of smaller objects

Regulations to limit enclosures below the base flood elevation have three objectives. First, they minimize the damage from floodborne debris that may hit the building. Second, they minimize the chance that the building itself could become a source of debris that may then hit other buildings. Third, they discourage residents from finishing the area below the base flood elevation and storing valuable or hazardous items in that area.

Enclosure Limits in Coastal A Zones

All enclosures prohibited	150 points
Enclosures limited to 299 square feet or less	50 points

These points are in addition to the 300 points provided for enclosure regulations in Section 430.h of the *CRS Coordinator's Manual*.

Impact Adjustment

CRS credit points are adjusted to reflect the impact of the community's activity on floodplain development. The impact adjustment serves to adjust credits so that the dollar impact of premium discounts is spread over the community's entire premium base.

Up to 500 points are available to local governments that require all new and substantially improved buildings in their entire SFHA or regulatory floodplain to be constructed based on V-Zone standards. Up to 150 CAZ points can be added to a local government's credit if enclosure regulations are applied to the entire SFHA or regulatory floodplain.

Coastal A Zone Impact Adjustment

If a local government adopts the Coastal A Zone regulations described above, an impact adjustment of 0.5 will be applied to the community's score.

Example 1.

Gulf Beach County floodplain regulations require that all new and substantially improved buildings in the Coastal A Zone be constructed to all NFIP V-Zone building regulations. A portion of the Coastal A Zone borders the Pamlico Sound. The city does not regulate enclosures.

CAZ = 500 points

Impact Adjustment: Regulating all new and substantially improved buildings in the Coastal A Zone has an impact adjustment of 0.5.

rCAZ = 0.5

Credit Calculation:

cCAZ = 500 x 0.5 = 250

Example 2.

The City of Gulf Beach floodplain regulations require all new and substantially improved buildings in the Coastal A Zone to be constructed to all NFIP V-Zone building regulations and all enclosures are limited to 299 square feet. These regulations are also enforced in an A Zone between the LiMWA and the Pamlico Sound. This additional area is 20% of the City's SFHA.

CAZ = 500 points for V-Zone rules + 50 points for enclosure rules = 550 points

Impact Adjustment: Regulating all new and substantially improved buildings in the Coastal A Zone has an impact adjustment of 0.5. The additional A Zone area has an impact adjustment of 0.2.

rCAZ = Coastal A Zone = 0.5
Additional A Zone with V Zone standards = 0.2

Credit Calculation:

cCAZ = Coastal A Zone	550 x 0.5 = 275
Additional A Zone	550 x 0.2 = 110

cCAZ = 275 + 110 = 385 points