NY Rising Housing Recovery Program

Program Maximum Design Criteria for Structural Elevation

November 24, 2014

The following design criteria is provided by the NY Rising Housing Recovery Program as guidance to Design Professionals for the maximum level of construction elements, material types, and finishes related to structural elevation design that will be funded by the Program.

Any request for deviation from these criteria or design elements above basic Program compensable requirements must be supported in writing from the local Authority Having Jurisdiction (AHJ). It is the responsibility of the Design Professional to select and provide the most cost efficient design alternative that complies with the minimum standards of the building code and Program requirements.

Designers and builders are reminded that designs should reflect the conditions at the specific project site and not rely on regional projects as a basis of design, or basis of details.

Definitions

- Code: NYS Building Code
- Design Professional: A person with an active registration with the New York State Department of Education to practice architecture or engineering in NY State
- Foundations: Below Grade Structural System
- Piers and Walls: Above Grade Structural System not enclosing habitable space
- Floor System: Framing and Decking Comprising the structural system below and supporting habitable space
- Fill Material: Select Granular Material

Sieve		**Percent Passing**
Sieve Size	**Size opening (mm)**	
2 inch	50.8	100
1/4 inch	6.35	30-65
No. 40	0.425	5-40
No. 200	0.075	0-10

Example Relevant Standards

Standards: Comply with provisions of the following standards, except where more stringent requirements are indicated.

- FEMA P-550, Second Edition/ December 2009, "Recommended Residential Construction for Coastal Areas"

- FEMA Technical Bulletin 2, "Flood Damage – Resistant Materials Requirements"
- ASCE/SEI 24-05 - Flood Resistant Design and Construction

1.0 Foundations

a. An investigation of the soil conditions by a Design Professional must be performed at the specific site to classify soil types and provide foundation recommendations.
b. Replacement, new and/or remediated foundations shall be designed by a Design Professional and appropriately sized in accordance with the results of the soils investigation and the applicable Code requirements.
c. Deep foundations (piles) or shallow foundations (spread footings) are acceptable foundation techniques under the Program.
d. Foundation systems using piles shall have cast in place pile caps (or equivalent) around the pile, reinforced concrete grade beam spanning between pile caps, and a wall or pier system spanning between the top of the elevation of the top of grade beams and the floor system of the habitable space.
e. Monolithic concrete slabs with concrete infill or "mud slabs" under the dwelling, serving as a floor surface for non-habitable space are not compensable under the Program.
f. Deep Foundations (piles) shall be specified by the Design Professional, appropriately sized and spaced, with a recommended depth in accordance with the results of the soils investigation and Code requirements to adequately support the axial and lateral loads imposed by the entire structure.
g. Design Professionals are directed to utilize pile materials that represent the most cost efficient solution when considering site and soil conditions.
h. Design professional will include a comparison of foundation systems if other types of deep foundations are specified over helical pile. The intent of this review is to determine the most cost effective solution.

2.0 Piers and Walls

a. Pier and wall supporting systems must be designed by a Design Professional and appropriately sized in accordance with the Code.
b. Pier and wall design materials shall be of reinforced concrete masonry unit (CMU), reinforced cast in place concrete, or treated (preservative) wood posts, reinforced appropriately in accordance with applicable code requirements. The use of Spiral Wound Forms for cast in place concrete is acceptable.
c. Perimeter walls and interior piers shall be of a design to meet the building code minimum requirements to account for all axial and lateral design forces. Regardless of perimeter wall material type, no more than 20% of the perimeter length of the dwelling shall be enclosed. Full perimeter walls enclosing the entire lower non-habitable space area, beyond the minimum requirements of the Code, are not compensable under the Program.
d. Sills and joists shall be sufficiently anchored to their supporting foundation component to resist all lateral design forces and any net uplift in accordance with the building code.
e. Aesthetic finishes to piers and walls and are not compensable under the Program.

3.0 Floor Systems

a. The repair or replacement of a floor system is largely dependent on the type of existing foundation (crawlspace or slab on grade) and the structural lifting technique directed or employed by the elevation contractor. Design Professionals are directed to use the most cost efficient repair technique when repairing floor systems above an existing foundation or in the replacement of a floor system when a slab on grade dwelling is disconnected from the existing slab foundation and is elevated.
b. When repairing or replacing a floor system (depending on the foundation type and lifting technique noted above), graded dimensional or engineered lumber shall be used in the most cost efficient manner to support the dwelling in accordance with the building code, except that engineered lumber that contains laminated elements shall only be used in a framing system that is completely protected from the elements.
c. Scabbing or sistering of floor joists and sills is allowed if specified by a Design Professional in accordance with the Code.

4.0 Utility Extensions

a. Existing utility lines (water, sewer, gas, electric, phone, etc.) shall be disconnected and lengthened or repositioned, prior to being reconnected in accordance with the governing code(s), and in accordance with the written recommendations of a Design Professional.
b. Any replacement or additions of utility lines must either be required by the Code or expressly required in writing from the municipality in order to be considered for compensation under the Program.
c. Upgrades to services above the existing damaged utilities (capacity) are not covered. Example 100 Amp 20 space breaker cannot be replaced 200 Amp 40 space breaker panel.

5.0 Access

a. Access to the dwelling will be in the form of treated (preservative) softwood stairs with a 25 sf landing (standard size) with softwood safety rails to all exterior doors designed in accordance with the building code. For existing door width, landings shall be 5 feet deep by the width of the door plus 1 foot on either side. After structural elevation and when applicable, all existing doors elevated to a 2.5 story height shall only receive an exterior landing with protective perimeter railings.
b. Stair height shall be calculated from the lowest adjacent grade to the eligible required height of the finished floor.

6.0 Fill Material

a. To facilitate positive drainage, fill material shall be placed under the dwelling, used for backfill of new foundations and finished up to 5 feet outside the perimeter of the dwelling at the level of the immediate adjacent grade.
b. Fill material to infill abandoned spaces underneath the dwelling shall only be placed and compacted in accordance with the Code, upon successful removal of any existing hardscape that may be located below the proposed fill material.
c. Fill Material will be sourced from a local source (less than 75 miles)

7.0 Additional Foundation Support

a. Many existing concrete footings and longitudinal foundations were not necessarily designed to perform as grade beams to span between piles. If proposing to supplement the existing foundation with additional supporting elements (such as helical piles), then the existing foundation to be incorporated within the remediated foundation system shall be analyzed and evaluated by a New York Licensed professional.

8.0 Area Paving

a. Off-street parking areas that may be required by local ordinances (as applicable) will be 12' x 20' (or 240 SF) unless required to be greater. Decorative paving, stamping, coloring or texturing cannot be compensated under the program.

9.0 Eligible and Non-eligible Foundation Items - Maximum Design Criteria

Includes crawlspace, slab separation or split level home types elevation components

Eligible	**Not Eligible**
Lift / Lower House	Flood Vents
Disconnect / Reconnect Utilities	Garage Doors
Utility Extensions	Additional Exterior Doors
Piles	Protection Doors
Pile Caps	Veneers on Exterior Walls (Aesthetics)
Grade Beams	Decks (>25 square foot landing)
Piers	Elevation above BFE + Statutory FB
Foundation Walls (<20% perimeter)	Monolithic Slabs Under Crawlspaces
Joist / Sill Connectors	Perimeter Wall Enclosure (>20%)
Floor Joists	Bathrooms below BFE
Sills	Non Flood Resistant Material below BFE
Flooring System	Partially Attached Garages (breezeways)
Floor Insulation	Sillcock valves (or similar), Wall Faucets, and drain down lines under BFE
Floor Enclosure / Bottom	Floor finishes
Stairs	Foundations built for future projects
Landings	Paving under building
Ramps	Furniture and Appliances
Chairlift / Wheelchair Platform	Windows and doors
Siding	Foundations built for future projects
Porches (if integral to dwelling)	Non-structural foundation components
Steel / Laminated Beams	Stairs to levels other than the entry level
Termite Shields	Transfer switches and generators below BFE
Additional Municipal Ordinance requirements	Piers or other structural elements added for aesthetic purposes and not structurally required.