

**CHAPTER 6
BUILDING CODE**

Authority

N.J.S.A. 13:17-1 et seq., specifically 13:17-6(i), and the Interagency Agreement between the Department of Community Affairs (DCA) and the Hackensack Meadowlands Development Commission (HMDC), dated February 27, 1991.

Source and Effective Date

R.1991 d.233, effective May 6, 1991.
See: 22 N.J.R. 2126(a), 23 N.J.R. 1451(a).

Executive Order No. 66(1978) Expiration Date

The expiration date of Chapter 6, Building Code, was extended by gubernatorial directive from May 6, 1996 to November 6, 1996. See: 28 N.J.R. 2566(c).

Chapter Historical Note

All provisions of Chapter 6, Building Code, were adopted pursuant to authority delegated at N.J.S.A. 13:17-1 et seq. and were filed and became effective May 1, 1970 as R.1970 d.46. See: 1 N.J.R. 17(b), 2 N.J.R. 52(a). Public Notice: See: 25 N.J.R. 1010(a).

CHAPTER TABLE OF CONTENTS

SUBCHAPTER 1. GENERAL PROVISIONS

- 19:6-1.1 (Reserved)
- 19:6-1.2 Authority
- 19:6-1.3 HMDC responsibility
- 19:6-1.4 Enforcement
- 19:6-1.5 Fees
- 19:6-1.6 Violations and penalties
- 19:6-1.7 Hackensack Meadowlands District uniform procedure
- 19:6-1.8 Certificates of occupancy
- 19:6-1.9 Appeals
- 19:6-1.10 Severability
- 19:6-1.11 HMDC statutory authority

SUBCHAPTER 2. FOUNDATIONS

- 19:6-2.1 Scope
- 19:6-2.2 Foundations; generally
- 19:6-2.3 Depth of foundations
- 19:6-2.4 Foundations at different levels
- 19:6-2.5 Slabs on grade
- 19:6-2.6 Construction
- 19:6-2.7 Soil investigations; general
- 19:6-2.8 Borings
- 19:6-2.9 Test pits
- 19:6-2.10 Probings (or auger borings)
- 19:6-2.11 Boring methods
- 19:6-2.12 Probings and geophysical explorations
- 19:6-2.13 Existing borings
- 19:6-2.14 Foundation loads
- 19:6-2.15 Pile reactions
- 19:6-2.16 Lateral loads
- 19:6-2.17 Eccentricities
- 19:6-2.18 Uplift forces
- 19:6-2.19 Impact
- 19:6-2.20 Stability
- 19:6-2.21 Classifications
- 19:6-2.22 Satisfactory bearing material
- 19:6-2.23 Nominally unsatisfactory bearing material
- 19:6-2.24 Allowable soil bearing pressures

- 19:6-2.25 Bearing capacity of nominally unsatisfactory bearing materials
- 19:6-2.26 Utility services
- 19:6-2.27 Footings
- 19:6-2.28 Foundation piers
- 19:6-2.29 Foundation walls
- 19:6-2.30 Construction of footings, foundation piers and foundation walls
- 19:6-2.31 Pile foundations; general requirements
- 19:6-2.32 Minimum pile penetrations
- 19:6-2.33 Use of existing piles at demolished structures
- 19:6-2.34 Tolerances and modification of design due to field conditions
- 19:6-2.35 Minimum spacing of piles
- 19:6-2.36 Minimum section
- 19:6-2.37 Capping and bracing of piles
- 19:6-2.38 Splicing of piles
- 19:6-2.39 General requirements for installation of piles
- 19:6-2.40 Use of uncased concrete pile shafts
- 19:6-2.41 Where more than one pile type, pile capacity or method of pile installation is used
- 19:6-2.42 Pile foundations
- 19:6-2.43 Allowable lateral load
- 19:6-2.44 Uplift capacity
- 19:6-2.45 Pile driving operations
- 19:6-2.46 Equipment
- 19:6-2.47 Procedures
- 19:6-2.48 Pile types; specific requirements
- 19:6-2.49 Timber piles
- 19:6-2.50 Precast concrete piles (including prestressed sections)
- 19:6-2.51 Cast-in-place concrete piles
- 19:6-2.52 Compacted concrete piles
- 19:6-2.53 Steel H sections
- 19:6-2.54 Concrete-filled pipe piles
- 19:6-2.55 Caisson piles
- 19:6-2.56 Composite piles
- 19:6-2.57 Underpinning
- 19:6-2.58 Use of rock support in lieu of underpinning
- 19:6-2.59 Stability
- 19:6-2.60 Factor of safety
- 19:6-2.61 Boring operations
- 19:6-2.62 Piling
- 19:6-2.63 Subgrade for footings, foundation piers and foundation walls
- 19:6-2.64 Constructions required for or affecting the support of adjacent properties or buildings
- 19:6-2.65 National standards for foundations

SUBCHAPTER 3. (RESERVED)

SUBCHAPTER 1. GENERAL PROVISIONS

Subchapter Historical Note

Subchapter 1, General Provisions, was repealed and replaced with new rules by R.1991 d.233, effective May 6, 1991. See: Source and Effective Date.

19:6-1.1 (Reserved)

19:6-1.2 Authority

These rules are hereby adopted for the Hackensack Meadowlands District (HMD) pursuant to the Interagency Agreement between the Hackensack Meadowlands Development Commission (HMDC) and the Department of Com-

munity Affairs (DCA), and pursuant to N.J.S.A. 13:17-1 et seq.

19:6-1.3 HMDC responsibility

The HMDC, acting as agent for the Department of Community Affairs, shall have the responsibility, pursuant to N.J.S.A. 13:17-1 et seq., for the approval of all plans, for insuring compliance with the Uniform Construction Code (UCC) and for enforcement as outlined in this chapter.

19:6-1.4 Enforcement

(a) As per the Interagency Agreement between the Department of Community Affairs (DCA) and the Hackensack Meadowlands Development Commission (HMDC) dated February 27, 1991, the HMDC shall act as DCA's agent within the HMD.

(b) The Office of the Chief Engineer (OCE) shall have the responsibility for reviewing and approving plans for all work within the HMD, pursuant to N.J.S.A. 13:17-1 et seq., subject to the requirements of this chapter, in addition to the responsibilities cited in N.J.A.C. 19:6-1.3. The OCE shall reserve the right to perform any or all inspections conducted in accordance with N.J.A.C. 5:23-2.18.

(c) Each municipal construction official has the responsibility of enforcing the requirements of the UCC and of this chapter in that portion of the HMD within the boundaries of his or her municipality, except for the specific circumstances noted in these rules.

(d) At least one OCE inspector/plan examiner in each subcode shall hold a class I license in accordance with N.J.A.C. 5:23. At least one member of the OCE staff shall also be licensed as a construction official, in accordance with N.J.A.C. 5:23-5.6.

(e) In the event that a municipal code enforcement official fails to implement any provision of this chapter or the UCC in that portion of the HMD within his or her jurisdiction, and no immediate action is deemed necessary by the HMDC, then the OCE, with prior written approval by the DCA, shall act in the capacity of that official, as agent for the DCA, in order to insure compliance with this chapter and the UCC.

(f) Except for (g) below, when the OCE shall determine that a violation of this chapter or the UCC exists, the OCE shall notify the Municipal Construction Official in writing of such violation and request the municipal construction official and the appropriate subcode official to take action necessary to bring about compliance with this chapter or the UCC and to notify the OCE of his or her actions.

(g) When the OCE determines that work in progress is being done contrary to approved plans and there is not adequate time to follow the procedure outlined in (f) above, and/or the OCE believes that any delay may exacerbate the extent and nature of the violation, then the OCE may act immediately to prevent continuation of such violations, as a subcode official acting as the agent of the DCA. This designation is temporary in nature and the OCE will act in this capacity until the violation is resolved. The municipality, upon written notification by the OCE, of the emergency situation and of its resolution, shall resume compliance authority.

19:6-1.5 Fees

(a) Fees for plan review shall be in accordance with N.J.A.C. 19:3-1.3.

(b) In the event the OCE enters into an agreement with any or all municipalities within the District to perform required inspections, the OCE shall collect 100 percent of the HMDC's permit fee. Twenty percent of that fee, exclusive of plan review fees, will be returned to the municipality to cover administrative costs.

19:6-1.6 Violations and penalties

For any violation of this chapter or the UCC, notice of violation and penalty procedure shall be in accordance with N.J.A.C. 19:4-6.24 and the UCC N.J.A.C. 5:23-2.31. All penalties shall be in accordance with the Uniform Construction Code.

19:6-1.7 Hackensack Meadowlands District uniform procedure

(a) All applications shall be initiated at the office of the municipal construction official and be in accordance with N.J.A.C. 5:23-2.15.

(b) The municipal construction official shall advise applicants that all applications requiring plan review are to be approved by HMDC prior to the issuing of a construction permit.

(c) Submittals to the HMDC for purposes of plan review shall consist of three sets of plans, copies of the standard UCC application forms filed with the municipality and plan review fees required by N.J.A.C. 19:3-1.3.

(d) Following approval of construction plans, the OCE shall return two copies of the approved plans and a Certificate of Compliance to the municipal construction official. Providing all prior approvals and the UCC rules have been satisfied, the municipal construction official shall then issue a construction permit, a copy of which shall be sent to the OCE.

(e) Whenever the municipal construction official shall fail to issue a construction permit after the applicant has satisfied all provisions of this chapter and the UCC, the OCE shall issue such permit upon DCA's written authorization. The OCE will then assume all responsibility for the compliance of such project with this chapter.

(f) The inspection procedure shall be as follows:

1. The municipal code officials shall have the primary responsibility for all required inspections.

2. As per N.J.A.C. 19:6-1.4(b), the OCE reserves the right to perform all inspections pursuant to N.J.A.C. 5:23-2.18.

3. The OCE and Municipal Construction Official shall be notified by the owner or his or her agent at the various stages of construction when inspections are required.

4. If the municipal code official is temporarily unable to perform an inspection upon notification, he or she can request that the OCE perform the inspection without compensation.

5. When the municipal code official relinquishes his or her responsibility for the performance of subcode(s) inspection concerning specific projects, and the OCE agrees to perform the inspection, acting as DCA's agent, the HMDC shall receive fees for such subcode inspection in accordance with the municipality's fee schedule.

(g) Municipal construction officials and the OCE shall supply applicants with a list of all required inspections and apprise the applicant of his responsibility to notify the municipal construction official and the OCE when work is ready for inspection.

19:6-1.8 Certificates of occupancy

(a) No certificate of occupancy, temporary certificate of occupancy or certificate of continued occupancy, shall be issued by the municipal construction official without certification by the OCE that a final inspection has been performed by the OCE and that such occupancy meets all provisions of N.J.A.C. 19:4, 19:5 and this chapter, and the plans approved by the OCE.

(b) Whenever the municipal construction official fails to issue a certificate of occupancy for a structure or tenant space which is in compliance with all provisions of this chapter, the OCE, upon DCA's written authorization, will issue such certificate of occupancy and receive all fees associated with such certificates.

19:6-1.9 Appeals

(a) Whenever the OCE shall act as agent of the DCA in the capacity of a UCC enforcing official under these regulations, any appeal of a decision of the OCE shall be made directly to the Department of Community Affairs.

(b) Any appeal of a plan review determination shall be made directly to the Hackensack Meadowlands Development Commission in accordance with N.J.A.C. 19:4-6.25.

(c) Any appeals of a municipal decision within the HMD may be made in accordance with N.J.A.C. 5:23-2.35.

19:6-1.10 Severability

If any section or subsection of this chapter is invalidated by judicial decision, such decision shall not affect the remaining sections or subsections of these regulations.

19:6-1.11 HMDC statutory authority

Except as provided herein, nothing contained in this chapter shall be construed to affect the statutory authority of the Commission pursuant to N.J.S.A. 13:17-1 et seq.

SUBCHAPTER 2. FOUNDATIONS

Editor's Note: In the initial printing of this chapter, the full text of subchapter 2 concerning the foundation supplement of the Hackensack Meadowlands Development Commission was not published. The full text of that supplement now follows.

19:6-2.1 Scope

These regulations shall be known and may be cited as the "foundation supplement," and in the event of any inconsistency between the provisions of this foundation supplement and the provisions of the Standard Building Code of New Jersey, as modified under subchapter 1, General Provisions, of this chapter, the provisions of this foundation supplement shall be controlling.

19:6-2.2 Foundations; generally

The foundation of buildings, including retaining walls, shall bear on, or be carried down to, satisfactory bearing materials in such manner that the entire transmitted load will be distributed over the supporting soils of any depth beneath the foundation at unit intensities within the allowable bearing values established in this subchapter. In addition, foundations shall be proportioned to limit settlements to a magnitude that will not cause damage to the proposed construction or to existing adjacent or nearby buildings during or after construction.

19:6-2.3 Depth of foundations

(a) The bottom surface of any footing, pier pile cap, or other foundation construction, other than grade beams, shall be carried down sufficiently to avoid exposure to frost except for foundation elements in the interior of closed and heated buildings.

(b) The bottom surface of any grade beam shall be carried down at least 18 inches below the lowest level of the adjoining ground surface that is exposed to frost.

19:6-2.4 Foundations at different levels

Where footings are supported at different levels, or at different levels from the footings of adjacent structures, the influence of the pressures under the higher footings on the stability of the lower footings shall be considered. Consideration shall be given to the requirements for lateral support of the material supporting the higher footings, the additional load imposed on the lower footings and assessment of the effects of dragdown on adjacent pile-supporting buildings.

19:6-2.5 Slabs on grade

Slabs on grade within or adjacent to a building shall be so designed to limit settlement of such slabs to a magnitude that will not impair their usability or cause damage to the building or its foundations.

19:6-2.6 Construction

(a) No foundation shall be placed on frozen soil. No foundation shall be placed in freezing weather unless provision is made to maintain the underlying soil free of frost.

(b) In an excavation where soil and ground water conditions are such that an inward or upward seepage might be produced in soil material intended to provide vertical or lateral support for foundation elements or for adjacent foundations, excavating methods that will control or prevent the inflow of ground water shall be employed to prevent disturbance of the soil material in the excavation or beneath existing buildings. No foundation shall be laid on soil that has been disturbed by seepage unless remedial measures, as directed by an architect or engineer, are taken.

19:6-2.7 Soil investigations; general

Borings in earth or rock, recovery of samples, test of soil samples, load tests, or other investigations or exploratory procedures shall be performed as necessary for the design and construction of a safe foundation, subject to inspection in accordance with requirements of this subchapter.

19:6-2.8 Borings

(a) Except for one and two-family dwellings with plan dimension not exceeding 2,500 square feet and where soil conditions are essentially uniform, at least five borings shall be made for each building, one in each corner and one in the center. For one and two-family dwellings of a size not to exceed 2,500 square feet, one boring shall be made for each such building. For buildings supported on piling, one boring shall be made for every 4,000 square feet of building area or fraction thereof, but not less than five borings for each building. Additional borings may be necessary if soil conditions are not found to be uniform. The boring program shall be expanded by probes as described in section 10 of this subchapter.

1. Where foundations are to rest on rock of class 1-65, 2-65, or 3-65, and such rock is exposed prior to construction over a part or all of the area of the buildings, borings will not be required in those areas where rock is exposed and the area (within the limits of the building) of the exposed rock surface shall not be included in the area used to compute the required number of borings provided the following requirements are met:

- i. The presence of defects or the inclination of bedding planes in the rock are of such size and location as to not affect the stability of the foundation;
- ii. The foundation is designed for bearing pressures not exceeding those permitted in table 613.6 of this subchapter, without increase for embedment.

(b) At least two thirds of the required number of borings shall be located within the area under the building. Those outside of the area shall not be more than 25 feet from the limits of the building. Borings shall be uniformly distributed or distributed in accordance with the loading pattern imposed by the building.

(c) Rules concerning depth are:

1. Unless soil material of class 1-65 through 3-65 is encountered at shallower depth, borings shall extend below the deepest part of the excavation, or in the case of pile supported buildings, below anticipated tip elevations of piling as necessary to satisfy the more restrictive of the following requirements:

i. Borings shall extend deep enough into nominally satisfactory bearing material to establish its character and thickness, but not less than the following:

- (1) Where the soil material is class 5-65: ten feet;
- (2) For other classes: 25 feet.

ii. Except as noted in subparagraphs i, iii and iv of this subsection, in order to determine the full depth of the organic silt strata and the underlying depth of sand or desiccated clay, all borings shall penetrate to a depth of at least 25 feet below the top of the organic soil or to such depth that the penetration resistance to the sample spoon decreases significantly, whichever is deeper;

iii. Borings shall extend to the depth at which the vertical stress caused by the proposed construction is reduced to ten per cent or less of the original vertical stress at this depth due to the weight of the overburden, except that where strata of soil materials of class 9-65 or poorer are encountered within this depth, the borings shall penetrate such strata and be carried to a depth that shows penetration continuous of material of class 8-65 or better as required in subsection (a) of this section;

19:6-2.56 Composite piles

Composite piles include those consisting of two types of piles joined together. The maximum allowable load shall be that allowed for the component of lesser strength used to make up the full pile length. The connection or joint between the two components shall be constructed so as to prevent the separation of the upper and lower components during construction and thereafter. The details and methods of making joints shall be designed.

19:6-2.57 Underpinning

Where support of adjacent structures or properties is required, such support may be provided by underpinning, sheeting and bracing or by other means acceptable to the chief engineer. Except as specifically permitted otherwise, underpinning piers, walls, piles and footings shall be designed and installed in accordance with the applicable provisions of this subchapter relating to piers, walls, piles and footings used in new construction and shall be inspected as provided in section 61 of this subchapter.

19:6-2.58 Use of rock support in lieu of underpinning

Existing structures founded at a level above the level of adjacent new construction may be supported on hard rock in lieu of underpinning, the use of sheeting and bracing, or the construction of retaining walls, provided that a report by the architect or engineer is submitted substantiating the safety of the proposed construction and verifying that an "in-place" inspection has been made of the rock exposed and of the joining therein in the excavation.

19:6-2.59 Stability

The possibility of overturning and sliding of the building shall be considered.

19:6-2.60 Factor of safety

(a) The minimum factor of safety against overturning of the structure as a whole shall be 1-1/2. Stability against overturning shall be provided by the dead load of the building, by the allowable uplift capacity of piling, by anchors, by weight of soil directly overlying footings, provided that such soil cannot be excavated without recourse to major modifications of the building, or by any combination of these factors.

(b) The minimum factor of safety against sliding of the structure under lateral load shall be 1-1/2. Resistance to lateral loads shall be provided by friction between the foundation and the underlying soil, by passive earth pressure, by batter piles, or by plumb piles, subject to the following:

1. The resistance to the lateral loads due to passive earth pressure shall be discounted where the abutting soil could be removed inadvertently by excavation.

2. In the case of pile-supported structures, frictional resistance between the foundation and the underlying soil shall be discounted.

3. The available resistance to friction between the foundation and the underlying soil shall be predicated on an assumed friction factor of 0.5 for soils of classes 1-65 through 8-65. A greater value of coefficient of friction may be used subject to verification by analysis and test. For soils of poorer classes, the stability shall be analyzed by accepted procedures of soil mechanics.

19:6-2.61 Boring operations

(a) Boring operations shall be subject to controlled inspection, except that 50 per cent or less of the required number of borings may be inspected by an architect or engineer other than an architect or engineer designated for controlled inspection. The records of boring shall be attested to as follows:

1. The architect or engineer shall file a report stating which borings were performed under his inspection and whether such inspection was performed personally or otherwise. If the inspection was not made personally by the architect or engineer, the name and address of the inspector shall be noted. It shall be stated: that the borings so inspected were made and were carried to the depths indicated; that, to the best of the architect's or engineer's knowledge and belief, the description and classification of the soils are a true description of the samples recovered from the respective borings; that such samples were recovered at the levels indicated; and that the boring work progressed in such manner that the samples recovered are reasonably representative of the subsurface conditions.

2. The accuracy of the other data indicated on the boring records shall be attested to by the drilling contractor or by the driller making the borings.

19:6-2.62 Piling

The installation of all piling shall be subject to controlled inspection. Such inspection shall be performed only by an architect or engineer resident at the site, the inspection of the work may be performed by non-licensed or nonregistered personnel working under the resident architect or engineer who need act only in a supervisory capacity. This exception shall not apply, however, in cases of timber or steel piles driven to end bearing as described in this subchapter. In all cases, an inspector shall be assigned to observe the operations of each rig.

19:6-2.63 Subgrade for footings, foundation piers and foundation walls

The soil material directly underlying all footings, foundation piers, and foundation walls shall be inspected by an architect or engineer after excavation and immediately prior to construction of the footings. If such inspection indicates

that the soils conditions do not conform to those assumed for purposes of design as described on the plans, or are unsatisfactory due to disturbance, then additional excavation, reduction in allowable bearing pressure, or other remedial measures shall be adopted, as required. A copy of a report or reports on such inspection or inspections describing the conditions found and any necessary modification of the design, and bearing the signature of the architect or engineer making the inspections, shall be filed with the chief engineer. In addition, notification shall be received by the chief engineer at least two working days prior to construction of the footing, pier, or foundation walls, that the subgrade is ready for inspection, if desired, and the subgrade shall be kept open for inspection by the chief engineer until the date and time specified in the notice.

19:6-2.64 Constructions required for or affecting the support of adjacent properties or buildings

Except in cases where a proposed excavation will extend less than ten feet below the legally established grade, all underpinning operations and the construction and excavation of temporary or permanent cofferdams, caissons, braced excavated surfaces, or other constructions or excavations required for or affecting the support of adjacent properties or buildings shall be subject to controlled inspection. The details of underpinning, cofferdams, caissons, bracing, or other constructions required for the support of adjacent properties or buildings shall be shown on the plans or prepared in the form of shop or detail drawings and shall be approved by the architect or engineer who prepared the plans.

19:6-2.65 National standards for foundations

(a) Replace SEC. MB-611.0 National Standard for Foundations in the Manual for the Standard Building Code of New Jersey with the following reference standards:

1. Accepted engineering practice:
 - i. Specifications and Dimensions for Wood Poles, 1963, USASI-05.1;
 - ii. Standard for the Preservative Treatment of all Timber Products by Pressure Processes, 1965, AWWA-C1;

- iii. Standard for the Preservative Treatment of Piles by Pressure Processes, 1966, AWWA-C3;
- iv. Standard for the Preservative Treatment of Poles by Pressure Processes, 1965, AWWA-C4;
- v. Standard Instructions for the Inspection of Preservative Treatment of Wood, 1962, AWWA-M2;
- vi. Standard for the Case of Pressure-Treated Wood Products, 1962, AWWA-M4;
- vii. Standard Specification for Round Timber Piles, 1958; ASTM-D25;
- viii. Specification for Welded and Seamless Steel Pipe Piles (Tentative), 1963, ASTM-A252;
- ix. Test for Sieve or Screen Analysis of Fine and Coarse Aggregates, 1967, ASTM-C136;
- x. Test for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing, 1966, ASTM-C117;
- xi. Method of Test for the Moisture-Density Relation of Soils Using a 10 pound Rammer and an 18 in. Drop (Tentative), 1966, ASTM-D1557;
- xii. Test for Sieve or Linear Analysis of Fine and Coarse Aggregates, 1967, ASTM-C136;
- xiii. Test for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing, 1966, ASTM-C117;
- xiv. Method of Test for the Moisture-Density Relation of Soils Using a 10 pound Rammer and an 18 inch Drop, 1966T, ASTM-D1557.

SUBCHAPTER 3. (RESERVED)

Authority

All provisions of this subchapter were adopted pursuant to authority of N.J.S.A. 13:11-1 and were filed on December 2, 1977, as R.1977 d.457 to become effective on December 12, 1977. See: 9 N.J.R. 393(a), 10 N.J.R. 49(a).

Historical Note

Subchapter 3, Uniform Construction Code; Uniform Procedure for Administration and Enforcement, was repealed by R.1991 d.233, effective May 6, 1991.