

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2007

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SENATE BILL 1946*
Commerce, Small Business and Entrepreneurship Committee Substitute Adopted
6/24/08

Short Title: Codify Energy Efficiency in Public Buildings. (Public)

Sponsors:

Referred to:

May 22, 2008

A BILL TO BE ENTITLED

AN ACT TO CODIFY THE STANDARDS GOVERNING ENERGY EFFICIENCY AND WATER USE FOR MAJOR FACILITY CONSTRUCTION AND RENOVATION PROJECTS INVOLVING STATE, UNIVERSITY, AND COMMUNITY COLLEGE BUILDINGS IN ORDER TO REDUCE THE CONSUMPTION OF ENERGY AND WATER, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION, AND TO ALLOW THE STATE, THE UNIVERSITY OF NORTH CAROLINA SYSTEM, AND THE NORTH CAROLINA COMMUNITY COLLEGE SYSTEM TO INSTALL PHOTO LUMINESCENT EXIT SIGNS WHEN PERMITTED BY THE STATE BUILDING CODE.

The General Assembly of North Carolina enacts:

SECTION 1. Chapter 143 of the General Statutes is amended by adding a new Article to read:

"Article 8C.

"Performance Standards for Sustainable, Energy-Efficient Public Buildings.

"§ 143-135.35. Findings; legislative intent.

The General Assembly finds that public buildings can be built and renovated using sustainable, energy-efficient methods that save money, reduce negative environmental impacts, improve employee and student performance, and make employees and students more productive. The main objectives of sustainable, energy-efficient design are to avoid resource depletion of energy, water, and raw materials; prevent environmental degradation caused by facilities and infrastructure throughout their life cycle; and create buildings that are livable, comfortable, safe, and productive. It is the intent of the General Assembly that State-owned buildings and buildings of The University of North Carolina and the North Carolina Community College System be improved by establishing specific performance standards for sustainable, energy-efficient public buildings. These performance standards should be based upon recognized, consensus

1 standards that are supported by science and have a demonstrated performance record.
2 The General Assembly also intends, in order to ensure that the economic and
3 environmental objectives of this Article are achieved, that State agencies, The
4 University of North Carolina, and the North Carolina Community College System
5 determine whether the performance standards are met for major facility construction
6 and renovation projects, measure utility and maintenance costs, and verify whether
7 these standards result in savings. Also, it is the intent of the General Assembly to
8 establish a priority to use North Carolina-based resources, building materials, products,
9 industries, manufacturers, and businesses to provide economic development to North
10 Carolina and to meet the objectives of this Article.

11 **§ 143-135.36. Definitions.**

12 As used in this section, the following definitions apply unless the context requires
13 otherwise:

- 14 (1) "ASHRAE" means the American Society of Heating, Refrigerating
15 and Air-Conditioning Engineers, Inc.
- 16 (2) "Commission" means to document and to verify throughout the
17 construction process whether the performance of a building, a
18 component of a building, a system of a building, or a component of a
19 building system meets specified objectives, criteria, and agency project
20 requirements.
- 21 (3) "Department" means the Department of Administration.
- 22 (4) "Institutions of higher education" means the constituent institutions of
23 The University of North Carolina, the regional institutions as defined
24 in G.S. 115D-2, and the community colleges as defined in
25 G.S. 115D-2.
- 26 (5) "Major facility construction project" means a project to construct a
27 building larger than 20,000 gross square feet of occupied or
28 conditioned space, as defined in the North Carolina State Building
29 Code adopted under Article 9 of Chapter 143 of the General Statutes.
30 "Major facility construction project" does not include a project to
31 construct a transmitter building or a pumping station.
- 32 (6) "Major facility renovation project" means a project to renovate a
33 building when the cost of the project is greater than fifty percent (50%)
34 of the insurance value of the building prior to the renovation and the
35 renovated portion of the building is larger than 20,000 gross square
36 feet of occupied or conditioned space, as defined in the North Carolina
37 State Building Code. "Major facility renovation project" does not
38 include a project to renovate a transmitter building or a pumping
39 station. "Major facility renovation project" does not include a project
40 to renovate a building having historic, architectural, or cultural
41 significance under Part 4 of Article 2 of Chapter 143B of the General
42 Statutes.
- 43 (7) "Public agency" means every State office, officer, board, department,
44 and commission and institutions of higher education.

1 "§ 143-135.37. Energy and water use standards for public major facility
2 construction and renovation projects; verification and reporting of
3 energy and water use.

4 (a) Program Established. – The Sustainable Energy-Efficient Buildings Program
5 is established within the Department to be administered by the Department. This
6 program applies to any major facility construction or renovation project of a public
7 agency that is funded in whole or in part from an appropriation in the State capital
8 budget or through a financing contract as defined in G.S. 142-82.

9 (b) Energy-Efficiency Standard. – For every major facility construction project of
10 a public agency, the building shall be designed and constructed so that the calculated
11 energy consumption is at least thirty percent (30%) less than the energy consumption
12 for the same building as calculated using the energy-efficiency standard in ASHRAE
13 90.1-2004. For every major facility renovation project of a public agency, the renovated
14 building shall be designed and constructed so that the calculated energy consumption is
15 at least twenty percent (20%) less than the energy consumption for the same renovated
16 building as calculated using the energy-efficiency standard in ASHRAE 90.1-2004. For
17 the purposes of this subsection, any exception or special standard for a specific type of
18 building found in ASHRAE 90.1-2004 is included in the ASHRAE 90.1-2004 standard.

19 (c) Water Use Standard. – For every major facility construction or renovation
20 project of a public agency, the water system shall be designed and constructed so that
21 the calculated indoor potable water use is at least twenty percent (20%) less than the
22 indoor potable water use for the same building as calculated using the fixture
23 performance requirements related to plumbing under the 2006 North Carolina State
24 Building Code. For every major facility construction project of a public agency, the
25 water system shall be designed and constructed so that the calculated sum of the outdoor
26 potable water use and the harvested stormwater use is at least fifty percent (50%) less
27 than the sum of the outdoor potable water use and the harvested stormwater use for the
28 same building as calculated using the performance requirements related to plumbing
29 under the 2006 North Carolina State Building Code. For every major facility renovation
30 project of a public agency, the Department shall determine on a project-by-project basis
31 what reduced level of outdoor potable use or harvested stormwater use, if any, is a
32 feasible requirement for the project, but the Department shall not require a greater
33 reduction than is required under this subsection for a major facility construction project.
34 To reduce the potable outdoor water use as required under this subsection, landscape
35 materials that are water use efficient and irrigation strategies that include reuse and
36 recycling of the water may be used.

37 (d) Performance Verification. – In order to be able to verify performance of a
38 building component or an energy or water system component, the construction contract
39 shall include provisions that require each building component and each energy and
40 water system component to be commissioned, and these provisions shall be included at
41 the earliest phase of the construction process as possible and in no case later than the
42 schematic design phase of the project. Such commissioning shall continue through the
43 initial operation of the building. The project design and construction teams and the

1 public agency shall jointly determine what level of commissioning is appropriate for the
2 size and complexity of the building or its energy and water system components.

3 (e) Separate Utility Meters. – In order to be able to monitor the initial cost and
4 the continuing costs of the energy and water systems, a separate meter for each
5 electricity, natural gas, fuel oil, and water utility shall be installed at each building
6 undergoing a major facility construction or renovation project. Each meter shall be
7 installed in accordance with the United States Department of Energy guidelines issued
8 under section 103 of the Energy Policy Act of 2005 (Pub. L. 109-58, 119 Stat. 594
9 (2005)). Starting with the first month of facility operation, the public agency shall
10 compare data obtained from each of these meters by month and by year with the
11 applicable energy-efficiency standard under subsection (b) of this section and the
12 applicable water use standard for the project under subsection (c) of this section and
13 report annually no later than August 1 of each year to the Office of State Construction
14 within the Department. If the average energy use or the average water use over the
15 initial 12-month period of facility operation exceeds the applicable energy-efficiency
16 standard under subsection (b) of this section or exceeds the applicable water use
17 standard under subsection (c) of this section by fifteen percent (15%) or more, the
18 public agency shall investigate the actual energy or water use, determine the cause of
19 the discrepancy, and recommend corrections or modifications to meet the applicable
20 standard.

21 **"§ 143-135.38. Use of other standard when standard not practicable.**

22 When the Department, public agency, and the design team determine that the
23 energy-efficiency standard or the water use standard required under G.S. 143-135.37 is
24 not practicable for a major facility construction or renovation project, then it must be
25 determined by the State Building Commission if the standard is not practicable for the
26 major facility construction or renovation project. If the State Building Commission
27 determines the standard is not practicable for that project, the State Building
28 Commission shall determine which standard is practicable for the design and
29 construction for that major facility construction or renovation project. If a standard
30 required under G.S. 143-135.37 is not followed for that project, the State Building
31 Commission shall report this information and the reasons to the Department within 90
32 days of its determination.

33 **"§ 143-135.39. Guidelines for administering the Sustainable Energy-Efficient**
34 **Buildings Program.**

35 (a) Policies and Technical Guidelines. – The Department, in consultation with
36 public agencies, shall develop and issue policies and technical guidelines to implement
37 this Article for public agencies. The purpose of these policies and guidelines is to
38 establish procedures and methods for complying with the energy-efficiency standard or
39 the water use standard for major facility construction and renovation projects under
40 G.S. 143-135.37.

41 (b) Preproposal Conference. – As provided in the request for proposals for
42 construction services, the public agency may hold a preproposal conference for
43 prospective bidders to discuss compliance with, and achievement of, the

1 energy-efficiency standard or the water use standard required under G.S. 143-135.37 for
2 prospective respondents.

3 (c) Advisory Committee. – The Department shall create a sustainable, energy-
4 efficient buildings advisory committee comprised of representatives from the design and
5 construction industry involved in public works contracting, personnel from the public
6 agencies responsible for overseeing public works projects, and others at the
7 Department's discretion to provide advice on implementing this Article. Among other
8 duties, the advisory committee shall make recommendations regarding the education
9 and training requirements under subsection (d) of this section, make recommendations
10 regarding specific education and training criteria that are appropriate for the various
11 roles with respect to, and levels of involvement in, a major facility construction or
12 renovation project subject to this Article or the roles regarding the operation and
13 maintenance of the facility, and make recommendations regarding developing a process
14 whereby the Department receives ongoing evaluations and feedback to assist the
15 Department in implementing this Article so as to effectuate the purpose of this Article.
16 Further, the advisory committee may make recommendations to the Department
17 regarding whether it is advisable to strengthen standards for energy-efficiency or water
18 use under this Article, whether it is advisable and feasible to add additional criteria to
19 achieve greater sustainability in the construction and renovation of public buildings, or
20 whether it is advisable and feasible to expand the scope of this Article to apply to
21 additional types of publicly financed buildings or to smaller facility projects.

22 (d) Education and Training Requirements. – The Department shall review the
23 advisory committee's recommendations under subsection (c) of this section regarding
24 education and training. For each of the following, the Department shall develop
25 education and training requirements that are consistent with the purpose of this Article
26 and that are appropriate for the various roles with respect to, and level of involvement
27 in, a major facility construction or renovation project or the roles regarding the
28 operation and maintenance of the facility:

29 (1) The chief financial officers of public agencies.

30 (2) For each public agency that is responsible for the payment of the
31 agency's utilities, the facility managers of these public agencies.

32 (3) The capital project coordinators of public agencies.

33 (4) Architects.

34 (5) Mechanical design engineers.

35 (e) Performance Review. – Annually the Department shall conduct a
36 performance review of the Sustainable Energy-Efficient Buildings Program. The
37 performance review shall include at least all of the following:

38 (1) Identification of the costs of implementing energy-efficiency and
39 water use standards in the design and construction of major facility
40 construction and renovation projects subject to this Article.

41 (2) Identification of operating savings attributable to the implementation
42 of energy-efficiency and water use standards, including, but not
43 limited to, savings in utility and maintenance costs.

- 1 (3) Identification of any impacts on employee productivity from using
2 energy-efficiency and water use standards.
- 3 (4) Evaluation of the effectiveness of the energy-efficiency and water use
4 standards established by this Article.
- 5 (5) Whether stricter standards or additional criteria for sustainable
6 buildings should be used other than the standards under
7 G.S. 143-135.37.
- 8 (6) Whether the Sustainable Energy-Efficient Buildings Program should
9 be expanded to include additional public agencies, to include
10 additional types of projects, or to include smaller major facility
11 construction or renovation projects.
- 12 (7) Any recommendations for any other changes regarding sustainable,
13 energy-efficient building standards that may be supported by the
14 Department's findings.

15 (f) Report on Performance Review. – Each year, the Department shall include in
16 its consolidated report under subsection (g) of this section a report of its findings under
17 the performance review under subsection (e) of this section.

18 (g) Consolidated Report Required. – The Department shall consolidate the report
19 required under subsection (f) of this section, the report under G.S. 143-135.37(e), the
20 report, if any, from the State Building Commission under G.S. 143-135.38, and the
21 report under G.S. 143-135.40 into one report. No later than October 1 of each year, this
22 consolidated report shall be transmitted to the Chairs of the General Government
23 Appropriations Subcommittees of both the Senate and the House of Representatives, the
24 Environmental Review Commission, and the Joint Legislative Commission on
25 Governmental Operations. The Department shall include any recommendations for
26 administrative or legislative proposals that would better fulfill the legislative intent of
27 this Article.

28 (h) Authority to Adopt Rules or Architectural or Engineering Standards. – The
29 Department may adopt rules to implement this Article. The Department may adopt
30 architectural or engineering standards as needed to implement this Article.

31 **"§ 143-135.40. Monitor construction standards and sustainable building standards.**

32 (a) The Department shall monitor the development of construction standards and
33 sustainable building standards to determine whether there is any standard that the
34 Department determines would better fulfill the intent of the Sustainable Energy-
35 Efficient Buildings Program to achieve sustainable, energy-efficient public buildings
36 than the standards under G.S. 143-135.37, and, if so, whether this Article should be
37 amended to provide for the use of any different standards or the use of any additional
38 standards to address additional aspects of sustainable, energy-efficient buildings.
39 Additional standards monitored shall address consideration of site development,
40 material and resource selection, and indoor environmental quality to enhance the health
41 or productivity of building occupants. Also, the Department shall monitor the
42 development of improved energy-efficiency standards developed by the American
43 Society of Heating, Refrigerating and Air-Conditioning Engineers, the ASHRAE
44 standards, shall monitor whether the State Building Code Council adopts any other

1 energy-efficiency standards for inclusion in the State Building Code that result in
2 greater energy efficiency and increased energy savings in major facility construction
3 and renovation projects under this Article, and shall monitor other standards for
4 sustainable, energy-efficient buildings that are based upon recognized, consensus
5 standards based on science and demonstrated performance, including the standards for
6 sustainable buildings under the Leadership in Energy and Environmental Design
7 (LEED) program, as authored by the United States Green Building Council.

8 (b) Each year, the Department shall report the results of its monitoring under this
9 section, including any recommendations for administrative or legislative proposals."

10 **SECTION 2.** G.S. 115D-20 is amended by adding a new subdivision to
11 read:

12 "(14) To comply with the design and construction requirements regarding
13 energy efficiency and water use in the Sustainable Energy-Efficient
14 Buildings Program under Article 8C of Chapter 143 of the General
15 Statutes."

16 **SECTION 3.** Article 6 of Chapter 146 of the General Statutes is amended by
17 adding a new section to read:

18 **§ 146-23.2. Purchase of buildings constructed or renovated to a certain**
19 **energy-efficiency standard.**

20 (a) A State agency shall not acquire by purchase any building unless the building
21 was designed and constructed to at least the same standards for energy-efficiency and
22 water use that the design and construction of a comparable State building was required
23 to meet at the time the building under consideration for purchase was constructed.
24 Further, a State agency shall not acquire by purchase any building that had a major
25 renovation unless the major renovation of the building was designed and constructed to
26 at least the same standards for energy-efficiency and water use that the design and
27 construction of a major renovation of a comparable State building was required to meet
28 at the time the building under consideration for purchase was renovated.

29 (b) This section does not apply to the purchase of a building having historic,
30 architectural, or cultural significance under Part 4 of Article 2 of Chapter 143B of the
31 General Statutes. This section does not apply to buildings that are acquired by devise or
32 bequest."

33 **SECTION 4.** The initial report under G.S. 143-135.37(e), the initial report
34 under G.S. 143-135.39(f), and the initial report under G.S. 143-135.40 are due no later
35 than August 1, 2009. The initial consolidated report required under G.S. 143-135.39(g)
36 is due no later than October 1, 2009.

37 **SECTION 5.** Section 1 of S.L. 2007-546 is repealed.

38 **SECTION 6.** Section 2.1(a)(1) of S.L. 2007-546 reads as rewritten:

39 "(1) Lighting Systems. – The installation of exit signs that employ
40 light-emitting diode (LED) technology or photo luminescent
41 technology; the replacement of incandescent light bulbs with compact
42 fluorescent light bulbs; and where appropriate, as determined by the
43 Department of Administration, the installation of occupancy sensors or
44 optical sensors."

1 **SECTION 7.** This act is effective when it becomes law. Section 1 and
2 Section 2 of this act apply to every major facility construction project, as defined in
3 G.S. 143-135.36 as enacted in Section 1 of this act, and every major facility renovation
4 project, as defined in G.S. 143-135.36 as enacted in Section 1 of this act, of a public
5 agency, as defined in G.S. 143-135.36 as enacted in Section 1 of this act, that has not
6 entered the schematic design phase prior to the effective date of this act.