

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2007

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HOUSE BILL 2531

Short Title: Energy-Efficient Buildings If State Funds. (Public)

Sponsors: Representatives Harrison, Carney, Cotham (Primary Sponsors);
Alexander, Allen, Bryant, Coleman, Glazier, Holliman, Insko, Martin,
Mobley, Ross, Thomas, Tolson, Underhill, Weiss, Womble, and Wray.

Referred to: Energy and Energy Efficiency, if favorable, Appropriations.

May 26, 2008

A BILL TO BE ENTITLED

1
2 AN ACT TO CODIFY THE STANDARDS GOVERNING ENERGY EFFICIENCY
3 AND WATER USE FOR MAJOR FACILITY CONSTRUCTION AND
4 RENOVATION PROJECTS INVOLVING STATE, UNIVERSITY, AND
5 COMMUNITY COLLEGE BUILDINGS AND TO EXTEND THOSE
6 STANDARDS TO MAJOR FACILITY CONSTRUCTION AND RENOVATION
7 PROJECTS INVOLVING BUILDINGS OF PUBLIC SCHOOL DISTRICTS AND
8 ANY OTHER ENTITIES THAT RECEIVE FUNDING FOR THE PROJECT IN
9 THE STATE CAPITAL BUDGET, AS RECOMMENDED BY THE
10 ENVIRONMENTAL REVIEW COMMISSION.

11 The General Assembly of North Carolina enacts:

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

"Article 8C.

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

16 **"§ 143-135.35. Findings; legislative intent.**

17 The General Assembly finds that public buildings can be built and renovated using
18 sustainable, energy-efficient methods that save money, reduce negative environmental
19 impacts, improve employee and student performance, and make employees and students
20 more productive. The main objectives of sustainable, energy-efficient design are to
21 avoid resource depletion of energy, water, and raw materials; prevent environmental
22 degradation caused by facilities and infrastructure throughout their life cycle; and create
23 buildings that are livable, comfortable, safe, and productive. It is the intent of the
24 General Assembly that State-owned buildings and buildings of The University of North
25 Carolina, the North Carolina Community College System, public school districts, and
26 other entities that receive any funding from the State capital budget for the project be
27 improved by establishing specific performance standards for sustainable, energy-

1 efficient buildings. These performance standards should be based upon recognized,
2 consensus standards that are supported by science and have a demonstrated performance
3 record. The General Assembly also intends, in order to ensure that the economic and
4 environmental objectives of this Article are achieved, that State agencies, The
5 University of North Carolina, the North Carolina Community College System, public
6 school districts, and other entities that receive any funding from the State capital budget
7 for the project determine whether the performance standards are met for major facility
8 construction and renovation projects, measure utility and maintenance costs, and verify
9 whether these standards result in savings. Also, it is the intent of the General Assembly
10 to establish a priority to use North Carolina-based resources, building materials,
11 products, industries, manufacturers, and businesses to provide economic development to
12 North Carolina and to meet the objectives of this Article.

13 **"§ 143-135.36. Definitions.**

14 As used in this section, the following definitions apply unless the context requires
15 otherwise:

- 16 (1) "ASHRAE" means the American Society of Heating, Refrigerating
17 and Air-Conditioning Engineers, Inc.
- 18 (2) "Commission" means to document and to verify throughout the
19 construction process whether the performance of a building, a
20 component of a building, a system of a building, or a component of a
21 building system meets specified objectives, criteria, and entity project
22 requirements.
- 23 (3) "Department" means the Department of Administration.
- 24 (4) "Institutions of higher education" means the constituent institutions of
25 The University of North Carolina, the regional institutions as defined
26 in G.S. 115D-2, and the community colleges as defined in
27 G.S. 115D-2.
- 28 (5) "Major facility construction project" means a project to construct a
29 building larger than 20,000 gross square feet of occupied or
30 conditioned space, as defined in the North Carolina State Building
31 Code adopted under Article 9 of Chapter 143 of the General Statutes.
32 "Major facility construction project" does not include a project to
33 construct a transmitter building or a pumping station.
- 34 (6) "Major facility renovation project" means a project to renovate a
35 building when the cost of the project is greater than fifty percent (50%)
36 of the insurance value of the building prior to the renovation and the
37 renovated portion of the building is larger than 20,000 gross square
38 feet of occupied or conditioned space, as defined in the North Carolina
39 State Building Code. "Major facility renovation project" does not
40 include a project to renovate a transmitter building or a pumping
41 station. "Major facility renovation project" does not include a project
42 to renovate a building having historic, architectural, or cultural
43 significance under G.S. 143-23.1.

1 (7) "Public entity" means every State office, officer, board, department,
2 and commission; institution of higher education; public school district;
3 or entity that receives any funding from the State capital budget for the
4 major facility construction or renovation project.

5 (8) "Public school district" means a local school administrative unit
6 eligible to receive appropriations from the State Public School Fund.

7 **"§ 143-135.37. Energy and water use standards for public major facility**
8 **construction and renovation projects; verification and reporting of**
9 **energy and water use.**

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

15 (b) Energy-Efficiency Standard. – For every major facility construction project of
16 a public entity, the building shall be designed and constructed so that the calculated
17 energy consumption is at least thirty percent (30%) less than the energy consumption
18 for the same building as calculated using the energy-efficiency standard in ASHRAE
19 90.1-2004. For every major facility renovation project of a public entity, the renovated
20 building shall be designed and constructed so that the calculated energy consumption is
21 at least twenty percent (20%) less than the energy consumption for the same renovated
22 building as calculated using the energy-efficiency standard in ASHRAE 90.1-2004. For
23 the purposes of this subsection, any exception or special standard for a specific type of
24 building found in ASHRAE 90.1-2004 is included in the ASHRAE 90.1-2004 standard.

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

43 (d) Performance Verification. – In order to be able to verify performance of a
44 building component or an energy or water system component, the construction contract

1 shall include provisions that require each building component and each energy and
2 water system component to be commissioned, and these provisions shall be included at
3 the earliest phase of the construction process as possible and in no case later than the
4 schematic design phase of the project. Such commissioning shall continue through the
5 initial operation of the building. The project design and construction teams and the
6 public entity shall jointly determine what level of commissioning is appropriate for the
7 size and complexity of the building or its energy and water system components.

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

26 **"§ 143-135.38. Use of other standard when standard not practicable.**

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

38 **"§ 143-135.39. Guidelines for Administering the Sustainable Energy-Efficient**
39 **Buildings Program.**

40 (a) Policies and Technical Guidelines. – The Department, in consultation with
41 public entities, shall develop and issue policies and technical guidelines to implement
42 this Article for public entities. The purpose of these policies and guidelines is to
43 establish procedures and methods for complying with the energy-efficiency standard or

1 the water use standard for major facility construction and renovation projects under
2 G.S. 143-135.37.

3 (b) Preproposal Conference. – As provided in the request for proposals for
4 construction services, the public entity may hold a preproposal conference for
5 prospective bidders to discuss compliance with, and achievement of, the energy-
6 efficiency standard or the water use standard required under G.S. 143-135.37 for
7 prospective respondents.

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

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

34 (1) The chief financial officers of public entities.

35 (2) For each public entity that is responsible for the payment of the entity's
36 utilities, the facility managers of these public entities.

37 (3) The capital project coordinators of public entities.

38 (4) Architects.

39 (5) Mechanical design engineers.

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

- 1 (1) Identification of the costs of implementing energy-efficiency and
2 water use standards in the design and construction of major facility
3 construction and renovation projects subject to this Article.
- 4 (2) Identification of operating savings attributable to the implementation
5 of energy-efficiency and water use standards, including, but not
6 limited to, savings in utility and maintenance costs.
- 7 (3) Identification of any impacts on employee productivity from using
8 energy-efficiency and water use standards.
- 9 (4) Evaluation of the effectiveness of the energy-efficiency and water use
10 standards established by this Article.
- 11 (5) Whether stricter standards or additional criteria for sustainable
12 building should be used than the standards under G.S. 143-135.37.
- 13 (6) Whether the Sustainable Energy-Efficient Buildings Program should
14 be expanded to include additional types of projects or to include
15 smaller major facility construction or renovation projects.
- 16 (7) Any recommendations for any other changes regarding sustainable,
17 energy-efficient building standards that may be supported by the
18 Department's findings.

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

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

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

35 **"§ 143-135.40. Monitor construction standards and sustainable building standards.**

36 (a) The Department shall monitor the development of construction standards and
37 sustainable building standards to determine whether there is any standard that the
38 Department determines would better fulfill the intent of the Sustainable Energy-
39 Efficient Buildings Program to achieve sustainable, energy-efficient public buildings
40 than the standards under G.S. 143-135.37, and, if so, whether this Article should be
41 amended to provide for the use of any different standards or the use of any additional
42 standards to address additional aspects of sustainable, energy-efficient buildings.
43 Additional standards monitored shall address consideration of site development,
44 material and resource selection, and indoor environmental quality to enhance the health

1 or productivity of building occupants. Also, the Department shall monitor the
2 development of improved energy-efficiency standards developed by the American
3 Society of Heating, Refrigerating and Air-Conditioning Engineers, the ASHRAE
4 standards, shall monitor whether the State Building Code Council adopts any other
5 energy-efficiency standards for inclusion in the State Building Code that result in
6 greater energy efficiency and increased energy savings in major facility construction
7 and renovation projects under this Article, and shall monitor other standards for
8 sustainable, energy-efficient buildings that are based upon recognized, consensus
9 standards based on science and demonstrated performance, including the standards for
10 sustainable buildings under the Leadership in Energy and Environmental Design
11 (LEED) program, as authored by the United States Green Building Council.

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

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

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

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

22 **§ 146-23.2. Purchase of buildings constructed or renovated to a certain energy-**
23 **efficiency standard.**

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

33 (b) This section does not apply to the purchase of a building having historic,
34 architectural, or cultural significance under G.S. 143-23.1. This section does not apply
35 to buildings that are acquired by devise or bequest."

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

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

41 **SECTION 6.** This act is effective when it becomes law. Section 1 and
42 Section 2 of this act apply to every major facility construction project, as defined in
43 G.S. 143-135.36 as enacted in Section 1 of this act, and every major facility renovation
44 project, as defined in G.S. 143-135.36 as enacted in Section 1 of this act, of a public

1 entity, as defined in G.S. 143-135.36 as enacted in Section 1 of this act, that has not
2 entered the schematic design phase prior to the effective date of this act.