

**GENERAL ASSEMBLY OF NORTH CAROLINA  
SESSION 2007**

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**(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)  
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Short Title: Energy Efficient Buildings If State Funds. (Public)

Sponsors: Representative Harrison.

Referred to:

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 AND TO EXTEND THOSE  
STANDARDS TO MAJOR FACILITY CONSTRUCTION AND RENOVATION  
PROJECTS INVOLVING BUILDINGS OF PUBLIC SCHOOL DISTRICTS AND  
ANY OTHER ENTITIES THAT RECEIVE FUNDING FOR THE PROJECT IN  
THE STATE CAPITAL BUDGET, AS RECOMMENDED BY THE  
ENVIRONMENTAL REVIEW COMMISSION..

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, the North Carolina Community College System, public school districts, and other entities that receive any funding from the State capital budget for the project be improved by establishing specific performance standards for

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

**"§ 143-135.36. Definitions.**

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

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

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

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

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

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

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

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

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

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

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

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

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

(a) The Department shall monitor the development of construction standards and sustainable building standards to determine whether there is any standard that the Department determines would better fulfill the intent of the Sustainable Energy Efficient Buildings Program to achieve sustainable, energy efficient public buildings than the standards under G.S. 143-135.37, and, if so, whether this Article should be amended to provide for the use of any different standards or the use of any additional standards to address additional aspects of sustainable, energy efficient buildings. Additional standards monitored shall address consideration of site development, 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 1 October 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 G.S.  
43 143-135.36 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.