

SUMMARY:

Wake County (NC) Public School System

The Wake County Public School System (WCPSS), which encompasses North Carolina's capital, Raleigh, and surrounding communities, has over 114,000 students. There are currently 134 schools within the district. *See* WCPSS, 2004 Annual Report at 16, at: http://www.wcpss.net/annual-reports/2004_nov12_annual_report_final.pdf. Building on local commitment to energy efficient, high quality facilities, the district has integrated into its substantial capital improvement program a design process that considers and incorporates health and environmental goals.

BACKGROUND

Building Program

In light of steadily increasing enrollment, Wake County Public School System has established a large, ongoing capital improvement plan. In November 2000, Wake County passed a school bond referendum providing \$500 million. The referendum funded a school building program (PLAN 2000) that included 14 new schools and 100 major renovation and improvement projects through 2004. *See* <http://www.wcpss.net/auxiliary-services/>. In 2003, voters approved a \$450 million school bond referendum for the next phase of the building program through 2008. This new phase (PLAN 2004) includes building 13 new schools and a pre-kindergarten center, comprehensive renovations at 16 schools, and repairs and re-roofing projects at 61 campuses. In addition to bond funds, the district is using savings from construction programs, state school construction funds, interest earnings, and other local funds. *See* http://www.wcpss.net/auxiliary-services/plan2004_intro.html.

School District Support for High Performance Schools

WCPSS officials have been the driving force in creating and implementing the district's high performance school building initiative. In particular, in the late 1990's, WCPSS hired a new director of facility planning, who came to Wake County with experience and an interest in sustainable school design and construction. While this official was not brought into the school system for the explicit purpose of developing a sustainable building program, she became a strong proponent and facilitator of high performance school planning and design within the district.

Outside Support for High Performance Schools

Wake County is located in the region of North Carolina known as Triangle J. The Triangle J Council of Governments has been involved in a variety of environmental and green building initiatives over the past several years. *See* <http://www.tjcog.dst.nc.us/hpgrpf.htm>. In 2000, Triangle J COG began coordinating an effort to create a regional high performance building guidance document. According to regional officials involved in the project, the broad goal was to change building practices throughout the region, with public buildings serving as a model. A number of regional agencies participated in the development of the Guidelines, and WCPSS and other officials from Wake County played a particularly important role in initiating and drafting the Guidelines.

In 2001, Triangle J COG published *High Performance Guidelines: Triangle Region Public Facilities*. The Guidelines were created specifically for use in this region and include case studies from the region. The document discusses a broad range of environmental and health goals and practices, and for each topic assigns a number of points. The Guidelines contain six general categories within which the various topics are presented: Quality Management, Site, Water, Energy & Atmosphere, Materials & Resources, and Indoor Environment. While the Guidelines include some prerequisites that do not earn points, most of the topics are optional. The Guidelines emphasize energy and water conservation, as well as certain siting issues. *See* Triangle J COG, High Performance Guidelines, at: <http://www.tjcog.dst.nc.us/hpgrpf.htm>.

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PROGRAM COMPONENTS

Framework for High Performance Design

Application of High Performance Design Criteria and Metric.

Wake County Public School System's efforts to institutionalize high performance design and construction accelerated in 2001 and 2002, as the district began to apply the Triangle J High Performance Guidelines to new projects under the PLAN 2000 capital program. Indeed, several designs from PLAN 2000 schools have been included in the Guidelines as case studies. *See* <http://www.tjcog.dst.nc.us/hpgrpf.htm>. According to district officials, WCPSS now requires the use of the High Performance Guidelines for every school construction or renovation project. According to district officials, the standard WCPSS agreement for architecture/ engineering services contains a clause that references the WCPSS Design Guidelines. In addition, the school system has attached the High Performance Guidelines to the WCPSS Design Guidelines, which A/E firms must follow. For each project, WCPSS requires a high performance plan, although the district does not require a minimum set of design features or a minimum number of points from the High Performance Guidelines criteria. Early in the project, the WCPSS project manager meets with the A/E firm and all other consultants to review the High Performance Guidelines' checklist and discuss how the project can incorporate high performance features.

Revision of Existing Design Guidelines. The Triangle J High Performance Guidelines supplement the WCPSS Design Guidelines, which set forth required design and construction practices. In the 1990's, a variety of energy-conservation provisions were included in the WCPSS Design Guidelines. The WCPSS Guidelines state generally that the "Design Team shall make every effort to provide a system design with maximum utilization of energy conservation measures, consistent with functional requirements of the buildings." WCPSS, Design Guidelines, § 01030 (1999) (on file with ELI). The WCPSS Guidelines require use of ASHRAE's Energy Conservation in New Building Design standard, as well as the State Building Code. The WCPSS Guidelines "strongly recommend" natural daylighting and require

thorough examination of daylighting strategies, as well as "consideration of building orientation to minimize heat loss, facilitate beneficial solar gain, and promote natural daylighting." *Id.* at §§ 01030, 02001. Life cycle cost analysis is required for at least three alternate HVAC systems. *Id.* at § 15500. In addition to these energy-related measures, the WCPSS Guidelines require that water-saving features be specified for all water-consuming devices. *Id.* at § 01030.

In 1999, the district's new director of facilities planning undertook a review of the WCPSS Design Guidelines to identify opportunities for incorporating high performance design measures. Subsequently, the district made a number of changes addressing health-related goals. For example, the WCPSS Guidelines address mold and moisture prevention by establishing a number of requirements relating to humidity levels, including the requirement that outside air be pre-treated to prevent humidity problems and that humidity-resistant acoustical panels be used. WCPSS Design Guidelines at §§15500, 09510. The WCPSS Guidelines also include requirements for low-emitting materials. For example, projects must use "environmentally safe, low odor adhesives" for carpeting; low-VOC adhesives and sealers for wall coverings; and water-based solvents and mercury-free paints with low or no VOCs. *Id.* at §§ 09680, 09720, 09900. Carpeted areas must be ventilated thoroughly prior to occupancy. *Id.* at § 09680.

According to district officials, the district is preparing for its next capital program, and the Board of Education is expected to express a formal commitment to high performance design in the planning assumptions for that program.