

DOCUMENT RESUME

ED 427 503

EF 005 200

TITLE Design and Construction Procedures for Public School Facilities.
INSTITUTION North Carolina State Dept. of Public Instruction, Raleigh.
PUB DATE 1998-10-00
NOTE 36p.
PUB TYPE Guides - Non-Classroom (055)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Educational Facilities Design; *Educational Facilities Improvement; Elementary Secondary Education; Guidelines; *Public Schools; *School Construction; *State Regulation
IDENTIFIERS *North Carolina; Regulatory Agencies

ABSTRACT

Confusion and frustration can often accompany local school boards of education and facilities designers who attempt to meet classroom facilities needs pursuant to North Carolina legislative requirements when building or renovating schools. This booklet identifies a number of procedures, regulations, and agencies associated with the construction of school facilities and provides information that can expedite logical and efficient planning. As facilities planning progresses, sections cover what may be required during each phase of the project from design development through to completion. The appendix contains a directory of North Carolina state agencies related to procedures for the design and construction of public school facilities and contact personnel, including the U.S. Army Corps of Engineers. (GR)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED 427 503

*project development
plans and specifications*

Design and Construction Procedures

*post-construction
directory of agencies*

EF 005 200

Published October 1998



Public Schools of North Carolina
State Board of Education
Department of Public Instruction

Division of School Support • School Planning
301 North Wilmington Street, Raleigh, NC 27601-2825
<http://www.dpi.state.nc.us/clearinghouse>

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL HAS
BEEN GRANTED BY

E. Brumback

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

1

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it.
- Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

2

BEST COPY AVAILABLE

DESIGN AND CONSTRUCTION PROCEDURES FOR PUBLIC SCHOOL FACILITIES

Foreword

Providing public school facilities that support and enhance efforts of children to learn and of teachers to teach is a continuing challenge to local school administrative units across our state. Research clearly indicates a relationship between the school facility and climate, order, and safety that can result in positive benefits to the educational endeavor. Creating a physical environment conducive to safety and success for every child is a goal we all share.

Many school administrators and school facilities designers are involved infrequently in the process of planning and building facilities and are, therefore, not fully familiar with the nuances of moving through the process in orderly and efficient sequence. This publication should prove particularly helpful when addressing current and emerging facilities needs. We hope you find it useful.

Phillip J. Kirk, Jr.

Phillip J. Kirk, Jr., Chair
State Board of Education

Michael E. Ward

Michael E. Ward, State Superintendent
North Carolina Department of Public Instruction

Acknowledgments

The Department of Public Instruction gratefully acknowledges the contributions of the following, without which the development of this publication would have been difficult.

Roger Ballard, AIA, Consulting Architect, School Planning Section, N.C. Department of Public Instruction, Raleigh, NC.

Long Chang, P.E., Consulting Engineer, School Planning Section, N.C. Department of Public Instruction, Raleigh, NC.

Eleanor Dixon, Administrative Assistant, School Planning Section, N.C. Department of Public Instruction, Raleigh, NC.

David Edwards, Ed.D., Education Consultant, School Planning Section, N.C. Department of Public Instruction, Raleigh, NC.

Ron Harrell, P.E., Consulting Engineer, School Planning Section, Department of Public Instruction, Raleigh, NC.

Jim Lora, Consulting Architect, School Planning Section, N.C. Department of Public Instruction, Raleigh, NC.

Jerry Knott, AIA, Chief, School Planning Section, N.C. Department of Public Instruction, Raleigh, NC.

Steve Taynton, Consulting Architect, School Planning Section, N.C. Department of Public Instruction, Raleigh, NC.

Ed Warner, P.E., Consulting Engineer, School Planning Section, Department of Public Instruction, Raleigh, NC.

Contents

Foreword.	iii
Acknowledgments	iv
Introduction	1
Using the Publication	1
Project Development Phases	3
Schematic Design	3
Design Development	4
Construction Document	5
Plans and Specifications	7
N.C. Department of Public Instruction	7
N.C. Department of Insurance	7
N.C. Department of Environment and Natural Resources	8
Wastewater Systems	8
School Cafeterias	8
Soil Sedimentation and Erosion Control	9
Water Supply Systems	9
Wetlands	10
N.C. Department of Transportation	10
N.C. Historical Commission	10
U.S. Army Corps of Engineers	11

Post-Construction Procedures	13
Property Accounting	13
Prototype School Design Clearinghouse	13
Special Cases	15
Purchase and Installation of Modular Units	15
Pre-engineered Structures and Modular Building Components	16
Buildings for Charter Public Schools	16
Public School Building Contracts	17
Public School Building Bonds	18
Appendix	21
Directory of Agencies	23
N.C. General Statutes	33

Introduction

Local boards of education and school facilities designers, in meeting classroom facilities needs pursuant to GS 115C-521, can experience confusion and frustration with the myriad of requirements and regulations encountered in the construction and renovation processes. This may be particularly true in school systems not regularly engaged in building programs. Reviews, certifications and approvals that can ensure safe and sanitary environments for learning can also result in expensive delays in project completion, where due care and planning are not exercised.

This publication identifies a number of procedures, regulations, and agencies associated with the construction of school facilities and provides information that can expedite logical and efficient planning. Since both regulations and agencies tend to change with time, the contents of the guide should not be assumed to be all-inclusive, but rather current examples based upon recent school construction experiences in the state.

Since final responsibility for meeting all applicable codes and other regulations rests with the owner, a directory of agencies is included in the Appendix. In addition, staff with the School Planning Section of the Department of Public Instruction may be reached at (919) 715-1990 for consultation.

Using the publication

This publication sets forth typical procedures for the planning and construction of public school facilities. It is neither comprehensive nor all-inclusive, but promotes an initial awareness of procedures, regulations, and agencies associated with the design and construction processes. The information herein in no way supersedes federal, state or local codes or regulations.

As facilities planning is initiated, the related section(s) of the publication should be consulted for procedures that are suggested or that may be required during each phase of the project, through completion. Additionally, early involvement of design professionals who are accustomed to dealing with regulatory agencies can significantly reduce the possibility of unnecessary delays. Agency representatives, identified in the Appendix, should be consulted regarding specific requirements and approval processes.

Project development phases

G.S. 115C-521 requires that before a board of education invests any money in any new building, it will first develop plans based upon consideration of the State Board of Education's *North Carolina Public School Facilities Guidelines*, submit those plans to the State Board for its review and comments, and review the plans based upon consideration of the comments it receives from the State Board. The School Planning Section in the Division of School Support has been designated the State Board's representative in that process.

For purposes of complying with the intent of this statute, "new building" is interpreted to include new schools, additions to existing schools, and major renovations; small building projects such as workforce development shops, athletic facilities, field houses, greenhouses, concession stands, press boxes, weight rooms, storage facilities, and bleachers; and modular buildings. Consultation with School Planning staff during each of the project development phases, including educational programming and specifications, is expected.

Schematic Design

The designer should consult with the owner to review the program described in the educational specifications and to establish project requirements. The designer should confer with consultants on the feasibility of various systems (structural, mechanical, electrical, etc.) for meeting functional and spatial requirements and any special conditions of the educational program. It is essential that consultants for site work, building systems, and other related areas be involved early in the planning process.

A schematic design submittal should include, as a minimum:

1. A location map, north point, dimensions for site boundaries, acreage, information about ownership and uses, and potential uses of adjacent property.
2. A scaled site plan showing facility location and size in relation to existing buildings, walks, roads, utilities, etc. The designer should be responsible for examining existing conditions and reviewing as-built drawings related to the project. Emphasis should be placed on early determination of the adequacy of utilities services and whether on-site utilities systems will be required.
3. A general description of the project that is based on the designer's studies and that indicates construction materials, framing system, and mechanical, electrical, and plumbing systems.
4. An indication of whether the site is located in a municipal watershed area or flood plain or involves wetlands.

5. Single-line drawings of the floor plan, to include mechanical and electrical rooms, service areas, and the like.

6. For existing schools, provide:

A. Floor plans of the main floors that indicate elevations and the construction date and type for each building. Proposed new buildings should also be shown on these drawings.

B. A site plan which shows existing walkways; developed areas for parking, athletics, and play; and roads. Existing water supply lines, overhead tank and well locations, and storm drainage and sewage disposal systems should be shown, as should proposed new systems for the project.

A site that involves development in a 100-year flood plain must comply with local ordinances. Questions should be addressed to the N.C. Division of Emergency Management, National Flood Insurance Program Branch at (919)733-5392.

For information about construction and maintenance of highway turn lanes, access roads, or parking areas for school buses, contact the N.C. Department of Transportation division engineer for your area. A directory is included in the Appendix.

Design Development

Based upon review comments from the schematic design submittal, the designer and consultants should jointly prepare economic and energy studies for systems being considered for the project. Two or more structural, electrical, and mechanical systems that are feasible for the project should be considered, with the best-suited systems being selected. The soil investigation report should be submitted with all other reports and studies made for the project.

The design submitted, which should be based upon these reports and specific project requirements, should include as a minimum:

1. Site plans showing topographic information, horizontal and vertical control points, general elements of drainage and sedimentation control, utilities requirements, and other site data furnished on the previous submittal.
2. Outline specifications describing materials and systems.
3. Scaled architectural floor plans with cross sections at appropriate points to show elevations, wall sections, and ceiling heights.
4. Room finish schedules showing material types for floors, walls, and ceilings.

5. Structural drawings and data, to include:
 - A. Soil boring logs from the sub-surface investigation report and allowable soil bearing pressure and live loads used in the design.
 - B. A foundation plan showing basic elements of the foundation and additional details and information necessary to delineate the types, sizes, and probable depths of special foundations such as piles or caissons.
 - C. Typical floor and roof framing plan that shows types, sizes, and spacing of principal members.
 - D. The location of shear walls, bracing, and moment frames, with additional details and information necessary to describe the method of lateral load resistance.

6. Mechanical drawings that show basic equipment layouts and locations of heating, ventilating, and air conditioning systems; a schematic of temperature control systems; and diagrammatic sketches of air, hot water and/or steam systems, and chilled and condenser water systems.

7. Plumbing drawings that show water supply source, waste disposal termination, and general development of the plumbing system.

8. Electrical drawings that show basic equipment, fixtures, and locations of electrical system power distribution components, to include primary service circuits, transformers, main switch gear, motor control centers, power and branch circuit panels, and a plan detail of the switchboard giving dimensions to comply with National Electrical Code 110-16.

To ensure the construction of new schools and renovations that are energy efficient, all energy-consuming systems, including heating, ventilating, and air conditioning, should be designed based upon the *Energy Guidelines for School Design and Construction* (N.C. Department of Public Instruction, School Planning Section) or similar criteria, pursuant to G.S. 115C-521.

Construction Documents

After consideration of the review comments from the design development submittal, the designer will prepare working drawings and specifications setting forth the project in detail and prescribing work to be done. The documents should specify materials, finishes, and workmanship; mechanical and electrical systems; special equipment; site work and utilities services and connections; and sample construction contracts. Design calculations for all systems are maintained in reproducible form by the designer, for submittal upon request. Energy-use data are to be provided.

Specifications and contract documents should be prepared on 8.5" x 11" paper and bound in the following order:

- Notice to Bidders
- Table of Contents
- Instructions to Bidders and General Conditions
- Supplementary General Conditions, including MBE guidelines
- Technical Specifications
- Form of Proposal
- MBE Appendices A-D
- Sample construction contract(s) with associated bond forms

For contracts where special excavation and/or foundations will be required, the specifications should include the designer's estimated bid quantity of material(s) involved. Such material(s) quantities may include, as examples, mucking (cubic yards), caisson earth and rock excavation (cubic yards), piling (lineal feet), or rock excavation (cubic yards). In each case, a corresponding unit price should be quoted in the Form of Proposal for final adjustment of quantities actually encountered. The designer's estimates should be based upon the sub-surface investigation reports, field conditions, and other information obtained locally.

It is recommended that the Certificate of Review from the School Planning Section be obtained prior to advertisement for bids. Contracts should not be signed prior to completion of the review process and issuance of a Certificate of Review.

Seals and signatures of the designers and dates of signing should be on each sheet of the construction drawings and on the title sheet of the specifications. As a general rule, seals appropriate to architecture or engineering should appear on drawings related to those respective fields of design.

Plans and specifications

Plans and specifications for all school construction projects should be reviewed and/or approved by designated local and state agencies prior to the solicitation of bid proposals. "All projects," in this context, is interpreted to include new schools, additions and renovations to existing schools, small building projects, and modular buildings. The following are representative examples of agencies and the functions they perform related to the review or approval of plans and specifications for school construction projects.

North Carolina Department of Public Instruction: School Planning

School Planning encourages design review meetings to expedite the formal review process. Plans and specifications are reviewed against the *North Carolina Public Schools Facilities Guidelines* for appropriateness for the educational program; structural and functional soundness, safety, and sanitation; and long-term cost efficiency (G.S.115C-521c). Plans are reviewed against the *Energy Guidelines for School Design and Construction* for building design and operation that take into account local conditions in an effort to reduce the impact of operation costs on local and state budgets (G.S.115C-521c).

Where a new building is to be constructed to replace an existing building, an analysis that compares the costs and feasibility of building the new building with those of renovating the existing building and clearly indicates the desirability of building the new building is required. Upon receipt by School Planning, a copy is submitted to the North Carolina Historical Commission (G.S.115C-521c). A packet entitled '*Feasibility and Cost Analysis*,' available from School Planning, can be helpful in expediting the analysis but is not required.

Upon completion of its review of plans and specifications, School Planning will forward its comments to the local board of education for consideration (G.S.115C-521c). Upon receipt of the board's responses to its comments (if required) or upon completion of the review process, School Planning will issue a Certificate of Review, which is valid for a period of one year. If construction is not begun within one year, a subsequent review should be requested.

North Carolina Department of Insurance

Plans are reviewed for conformance with the North Carolina State Building Code. Approval must be obtained for all construction projects, to include additions and renovations. Plans and specifications should be submitted with a Building Code Summary Sheet. Plans should be reviewed at each design phase.

Upon approval, the engineering division will forward a letter of approval to the designer, with copies to School Planning and the local building inspector.

North Carolina Department of Environment and Natural Resources

CONNECTIONS TO WASTEWATER SYSTEMS

Note: Construction contracts may not be signed until the wastewater treatment system is permitted.

Public Systems Contact the Division of Water Quality regional office for regulations and recommendations pertaining to systems under DWQ's jurisdiction.

School-owned Systems that Discharge to the Land Surface or Surface Waters

Contact the Division of Water Quality regional office for regulations and recommendations pertaining to systems under DWQ's jurisdiction.

On-Site Systems for Subsurface Treatment and Disposal The Environmental Health Section of the local health department should be contacted, prior to the repair of an existing system or the design of a new system, to conduct necessary investigations and soil and site evaluations and to provide recommendations during planning stages. The local health department shall be contacted for initial permit issuance or renewal of permits for new or existing systems.

Approval of plans and specifications by the On-site Wastewater Section of the Division of Environmental Health (919)733-2895 may be required prior to permit issuance by the local health department. No construction permits for new or expanded facilities may be issued until all such applicable permits have been issued. Note that renewal and compliance are contingent upon proper operation and maintenance by a certified operator, whose reports of inspection and other monitoring shall have been submitted to the appropriate agencies (e.g. the local health department or DWQ's Groundwater Section).

Because of the potentially extended review and approval process, designers are encouraged to complete and submit this portion of the project during the early design phases.

SCHOOL CAFETERIAS: SANITATION REQUIREMENTS

The sanitation requirements of 15A NCAC 18A .2600 (Rules Governing the Sanitation of Restaurants and Other Food-Handling Establishments) and 15A NCAC 18A .2400 (Rules Governing the Sanitation of Public, Private, and Religious Schools) must be met before construction may begin.

A complete set of final working drawings for "permitted" food service establishments must be submitted for approval to the Environmental Health Services Section of the Division of Environmental Health (see Directory of Agencies in Appendix) by the architect or engineer, prior to commencement of construction. Site plans should

show the locations of dumpsters or containerized systems used to store garbage, and all related cleaning facilities. Upon approval, plans will be forwarded by the Environmental Health Services Section to the local health department for comments and permitting.

SOIL SEDIMENTATION AND EROSION CONTROL

The provisions of North Carolina General Statutes 113A-50 through -66 and the Rules and Regulations of the North Carolina Sedimentation Control Commission require that protection from erosion and sedimentation be established and maintained during construction, under most conditions. Two sets of drawings and specifications for any project that involves land-disturbing activity that is greater than one acre in size should be provided the Land Quality Section regional office (see Directory of Agencies in Appendix) for review and approval not less than 30 days prior to the commencement of land-disturbing activities.

Statutory requirements include:

1. Protection is required in any instance in which land is disturbed (e.g. by grading, filling, excavating, etc.).
2. Protection for land-disturbing activities along a lake or natural watercourse is required.
3. Slopes are to be protected.
4. The person engaged in or conducting the land-disturbing activities is responsible for maintaining the erosion and sedimentation measures and/or other facilities
5. The Commission shall have the right to enter onto any property--public or private--for the purposes of investigation or inspection.

WATER SUPPLY SYSTEMS

Public If possible, obtain water from an approved public water supply source, such as a municipal, county, sanitary district or community system.

School-owned When it is not possible or economically feasible to connect to a public water source, it will be necessary for the school to establish its own system. School-owned water supply systems shall comply with Section .0203 PUBLIC WELL WATER SUPPLIES of the *Rules Governing Public Water System*, which is available from the state Public Water Supply Section (919-733-2460).

To expand an existing groundwater supply system or to establish a new system, contact the regional health office of the Department of Environment and Natural Resources, Environmental Health Division. A field representative will instruct the architect or engineer on procedures and assist in the location of a well site. Upon request, a representative will inspect the site and issue a well site approval.

After plans have been developed for the system, the engineer shall submit three sets of drawings and specifications with an Application for Approval Form, to the Technical Services Branch, Public Water Supply Section, P.O. Box 29536, Raleigh, NC, 27626-0536. Upon approval of the plans, the branch will return one set to the applicant, forward one set to the regional health office of the Public Water Supply Section, and maintain one set in its permanent files.

WETLANDS (See also U.S. Army Corps of Engineers.)

Any school site involving wetlands requires Section 401 water quality certification. Questions regarding certification should be directed to the Wetlands Unit of the Division of Water Quality's Water Quality Section (see Directory of Agencies in the Appendix). Inquiries concerning field location of streams, ditches, and ponds should also be directed to the Wetlands Unit.

North Carolina Department of Transportation

General Statute 136-18(17) authorizes the Department of Transportation to provide to school systems certain services related to the operation of public school buses. In general, where a new school is being constructed, the Division of Highways will pave and maintain bus driveways to DOT standards and stabilize (gravel) and maintain bus parking lots. It is important to note that turn lanes required before the issuance of driveway permits are the responsibility of the owner. The designer should consult with the DOT on preliminary driveway locations.

North Carolina Historical Commission

The General Statutes of North Carolina prohibit a board of education from investing any construction money in a new school building to replace an existing school building unless it submits to the State Superintendent of Public Instruction an analysis that: 1) compares the feasibility and costs of building the new building and of renovating the existing building; and 2) clearly indicates the desirability of building the new building. The State Superintendent is required to forward such analyses to the North Carolina Historical Commission.

The School Planning Section of the Department of Public Instruction provides, upon request, feasibility and costs analysis forms which may be used to conduct and submit the required analysis. All analyses, regardless of format, should be forwarded to School Planning, which acts as designated agent for the State Superintendent. Review of analyses can be expedited by the inclusion of: 1) an address and location map for the existing building; 2) a site plan showing the placement of the existing and proposed buildings; 3) a floor plan of the existing building; and 4) a photograph of the exterior of the existing building.

United States Army Corps of Engineers

The Corps of Engineers is responsible for wetlands delineation and the issuance of Section 404 permits. For any school site that involves wetlands, contact the regulatory field office of the U.S. Army Corps of Engineers (see Directory of Agencies in the Appendix) for site inspection and permit issuance. To expedite permit issuance, it is recommended that the applicant employ an independent engineer to delineate wetlands prior to requesting confirmation by a C.O.E. field representative.

Contact the Water Quality Section of the Department of Environment and Natural Resources' Division of Water Quality for Section 401 water quality certification. The Corps of Engineers cannot issue a Section 404 permit until D.W.Q issues a Section 410 certification.

Post-construction

Property Accounting

Upon completion of the project, the designer should update property accounting records for the project in an 11" x 17" format. Drawings should conform to the project as finally constructed and should be submitted in reproducible form to the owner within 60 days of the final acceptance date. School Planning should be consulted for the suggested format and for information that should be included.

Prototype School Designs

Designs for new schools may be submitted to the School Planning Section of the North Carolina Department of Public Instruction for inclusion on the North Carolina School Designs Clearinghouse web site. Submittal procedures closely approximate those for property accounting purposes. The Clearinghouse may be accessed at *WWW.dpi.state.nc.us/clearinghouse*

Special cases

Purchase and Installation of Modular Units

BASIC UNITS (Freestanding temporary, relocatable classroom or toilet units)

The General Statutes for permanent, site-built structures must also be followed when taking bids for the purchase of these units. Formal or informal bidding procedures (depending on dollar value) must be followed. Refer to School Planning's *Selected Laws Relating to the Construction and Repair of Public School Facilities in North Carolina*.

Units must meet requirements of the current edition (with amendments) of the NCSBC, Volume 1 for educational occupancy; applicable plumbing, mechanical, and electrical codes and other legal requirements; and local zoning ordinances. Shop drawings for each unit must bear the Approval Stamp from a third-party certification agency approved by the Department of Insurance. Manufacturers must be approved for commercial construction by the DOI's Manufactured Building Section. Listings of approved third-party certification agencies and approved modular manufacturers are available from the Department of Insurance.

Wind and other locale-specific code provisions must be met. Fossil fuel-fired heating devices should not be used. Units meeting functional, safety, and code requirements will generally be consistent with School Planning review guidelines.

SITE-SPECIFIC PROCEDURES (new and relocated units)

The following should be provided to School Planning for review and comment and to the local building inspector for approval and permitting.

1. Site plans showing:
 - a. Proposed locations for units and any joining of multiple units
 - b. Distances to both student and staff toilets (200-foot maximum)
 - c. Adequate number of toilet facilities, as required by building code for the entire campus. (May require the addition of modular toilet units.)
 - d. Electric feeders, disconnects, etc., as required by code
 - e. Plumbing service
 - f. Telephone, intercom, MATV, computer and other electronic systems.
 - g. Smooth-surface walks (preferably covered) from permanent buildings to meet handicap code and provide ADA access
 - h. Confirmation that units are constructed by a DOI-approved manufacturer and certified by an approved third-party agency.

2. Foundation plans showing:

- a. Footings and foundations (piers). Permanent concrete footings must be provided and grouted or surface-bonded piers are required.
- b. Locations of up-lift tie-downs or other means of wind anchorage
- c. Locations and framing for steps and ramps to meet handicap code and provide ADA access

Other connections to permanent buildings should be indicated. Though not required by code, School Planning recommends two-way intercom systems, computer networking, telephone systems, and MATV connections between all units and the permanent school structures.

Pre-engineered Structures and Modular Building Components

Pre-engineered structures or systems used for school projects, such as metal building systems, modular building components or systems, and grandstands or bleachers, are subject to design review by School Planning. Structural designs are often incomplete when bid documents are completed, although general layouts and other information necessary to conduct architectural reviews are included. Conditional certificates of review that allow mobilization and site preparation to begin prior to completion of final structural designs can be issued following review of bid documents.

Project reviews are completed and certificates of review issued upon certification to School Planning that foundations and other structural systems have been designed by or reviewed and approved by structural engineers for the projects. General Statute 133-1 requires that project architects and engineers be in the employ of owners and prohibits project designers being employed by or having financial interest in manufacturers or suppliers of pre-engineered structures.

Buildings for Charter Public Schools

School Planning is required to review and provide comments for all plans for additions and renovations to public school facilities, as well as for construction of new public school facilities, for local school administrative units. While G.S.115C-238.29E(f) exempts charter public schools from that process, School Planning offers equivalent services, upon request, as technical assistance and support to chartering entities or to potential applicants.

G.S.115C-238.29F(a) states, "A charter school shall meet the same health and safety requirements required of a local school unit." Such requirements are functions of state and local building codes and are administered by the North Carolina Department of Insurance and local building inspection agencies, respectively.

Public School Building Contracts

CHANGES TO G.S.143-128 The following changes to requirements for public building contracts over \$500,000 were made in 1998 and apply only to school building projects.

1. When bids are solicited under *both* the single-prime and separate-prime systems, a school system may select *either* the lowest single-prime bidder *or* the lowest set of separate-prime bidders, based upon its evaluation of the bids.
2. Single-prime bids must identify the plumbing, HVAC, and electrical subcontractors *and* provide the respective bid prices for each subcontractor's work.
3. A subcontractor *may not* bid more (but may bid less) under the single-prime system than the amount bid as a separate prime contractor.
4. Separate-prime bids *must be received* three hours prior to single-prime bids, but all bids should be opened at the same time.
5. Each contractor *must* submit an affidavit with their bid that they have made a good-faith effort to meet the minority business goals required by G.S.143-128(f). MBE requirements remain the same--only the requirement for an affidavit is added.
6. School systems *may not* solicit bids under the single-prime system *only*. Bids *must* be solicited under the single-prime *and* the separate-prime systems if single-prime bids are desired. Single-prime bids *may* be opened and contracts awarded if only one general construction bid is received under the separate-prime system. Separate prime bids should not be opened if less than a *complete* set is received.

MINIMUM NUMBERS OF BIDS Bids may not be opened unless at least three competitive bids are received in one of the following combinations.

1. Three *complete* sets of separate-prime bids (three each of general construction, plumbing, HVAC, and electrical).
2. Three single-prime bids *plus* one general construction bid under the separate-prime system.
3. Two single-prime bids *plus* one *complete* set of separate-prime bids
4. One single-prime bid *plus* two *complete* sets of separate-prime bids.

If the minimum number of bids has not been received, a school system *must* re-advertise. After the resultant bids are received, bids may be opened and contracts awarded with a

minimum of one complete set of separate-prime bids *or* one single-prime bid.

Public School Building Bonds

The North Carolina Public School Building Bond Act of 1996, approved by referendum on November 5 of that year, provides \$1.8 billion in grants for school capital construction projects. The amount of the grant to each school system was established by the Act. Bond sales are limited to \$450 million per year, with projects scheduled over four to six years.

BOND ADMINISTRATION PROCESS

1. Expenditure Plan: Each school system submits a list of projects that shows the amounts of funding from the Bond Fund and from other sources, a schedule of key dates that is used to estimate cash flow, and plan certification by the local board of education. Forms B96-EP1 and B96-EP2 are used to report this plan.

The State Board of Education has designated School Planning, Division of School Support to review and approve expenditure plans. Yearly allocations are established for each school system and for each project and cannot be exceeded unless a revised expenditure plan is approved. Requests to exceed yearly allocations are submitted to the Superintendents' Bond Advisory Council.

2. Authorizations: School Planning authorizes the School Business Division to begin releasing bond funds after requests from school systems have been received and reviewed. Form B96-REQ is used to request authorizations. Authorizations are made at each of the following three phases.

- A. Land Purchase: Just before land for a new school or addition is purchased.
- B. Design/Administration: When the architect or engineer begins the design work.
- C. Construction: After bids have been received and school planning has reviewed the final plans and issued a certificate of review.

Requests for authorizations are made for the total amount of the current phase, do not include amounts previously requested, and must be approved before funds may be disbursed.

3. Requests for Funds: Funds are requested as expenses are incurred to pay current invoices or reimburse for paid invoices. Requests are made on-line using the Capital Outlay Cash Management System. In some cases, requests may be made by FAX when invoices are paid by the county. Funds requested by 3:00 p.m. on Tuesday are deposited electronically into the designated bank account on Friday of the same week.

RESOURCES

1. Assistance with developing and revising bond expenditure plans, cash flow projections (to stay within legislated yearly limits), consultation and review on building design plans, and authorization of project funding are provided by School Planning, Division of School Support. Contact Jim Lora at (919) 715-1973.
2. Cash management and accounting, including disbursement and tracking of funds, are provided by the Financial Services and School Business Divisions. Contact Jennifer Bennett at (919) 715-1398.
3. The Superintendents' Bond Advisory Council, comprising local school superintendents, meets periodically to review progress and provide oversight to the process. Contact Dr. Ben Matthews at (919) 715-2056.

Appendix

**DIRECTORY OF AGENCIES RELATED TO PROCEDURES
FOR THE DESIGN AND CONSTRUCTION OF PUBLIC SCHOOL FACILITIES**

SCHOOL PLANNING SECTION
Financial and Personnel Services: School Support Division
North Carolina Department of Public Instruction
301 North Wilmington Street, Raleigh, NC 27601-2825
Phone: (919) 715-1990 Fax: (919) 715-1063

Gerald H. Knott, AIA, Chief
(919) 715-1977
jknott@dpi.state.nc.us

Eleanor Dixon, Office Manager
(919) 715-1981
edixon@dpi.state.nc.us

STAFF

Roger Ballard, AIA, Consulting Architect
(919) 715-1849
rballard@dpi.state.nc.us

Architectural plan review

Long Chang, P.E., Consulting Engineer
(919) 715-1968
lchang@dpi.state.nc.us

Structural plan review; Literary (Loan)
and Critical Needs funds

David Edwards, Ed.D., Education Consultant
(919) 715-1967
dedwards@dpi.state.nc.us

Educational program review; charter
schools; school merger

Belinda Guy, Statistical Research Analyst
(919) 715-2046
bguy@dpi.state.nc.us

Local bond statistics; construction costs

Ron Harrell, P.E., Consulting Engineer
(919) 715-1970
rharrell@dpi.state.nc.us

Electrical plan review; code issues

Jim Lora, Consulting Architect
(919) 715-1973
jlora@dpi.state.nc.us

State school construction bond; archi-
tectural plan review

Steve Taynton, Consulting Architect
(919) 715-1979
staynton@dpi.state.nc.us

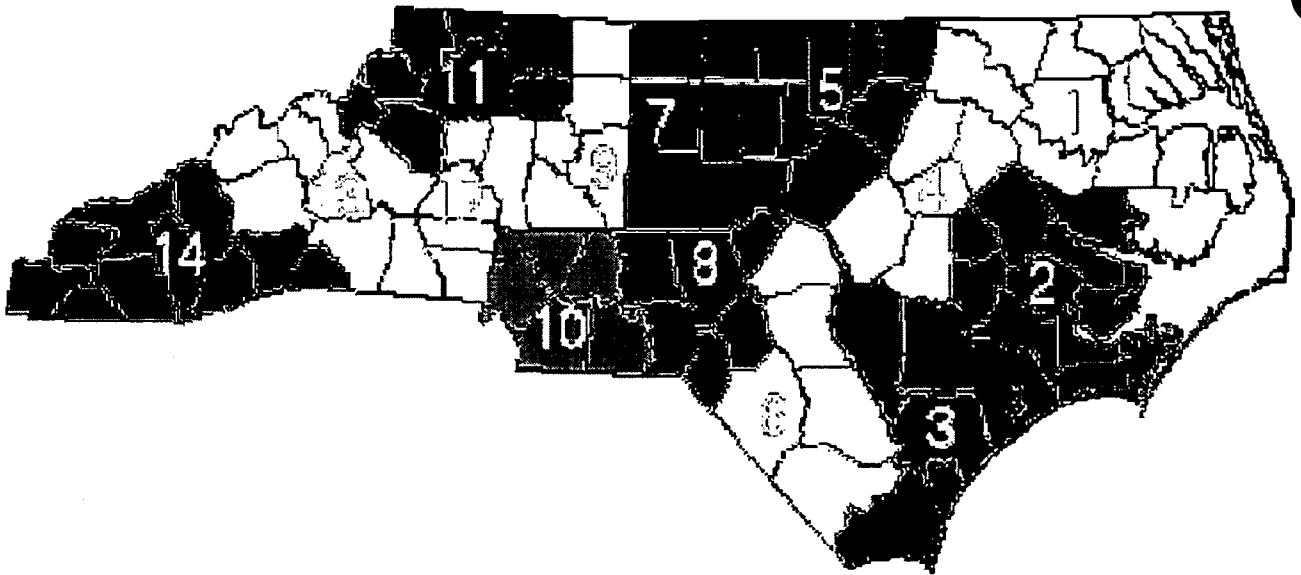
Architectural plan review; prototype
school designs clearinghouse

Ed Warner, P.E., Consulting Engineer
(919) 715-3182
ewarner@dpi.state.nc.us

Mechanical plan review; indoor air
quality

DIVISION OF HIGHWAYS
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Counties by Division and District -



<u>DIVISION</u>	<u>DISTRICT</u>	<u>COUNTIES</u>
1	1	Camden; Currituck; Dare; Gates; Pasquotank; Perquimans
	2	Bertie; Hertford; Northampton
	3	Chowan; Hyde; Martin; Tyrrell; Washington
2	1	Beaufort; Pitt
	2	Carteret; Craven; Pamlico
	3	Greene; Jones; Lenoir
3	1	Onslow; Pender
	2	Duplin; Sampson
	3	Brunswick; New Hanover
4	1	Edgecombe; Halifax
	2	Nash; Wilson
	3	Johnston; Wayne
5	1	Wake
	2	Durham; Granville; Person
	3	Franklin; Vance; Warren
6	1	Robeson
	2	Cumberland; Harnett
	3	Columbus; Bladen

- 7 1 Alamance; Orange
 2 Guilford
 3 Caswell; Rockingham
- 8 1 Chatham; Randolph
 2 Lee; Hoke; Moore
 3 Montgomery; Richmond; Scotland
- 9 1 Davidson; Rowan
 2 Davie; Forsyth; Stokes
- 10 1 Stanly; Cabarrus
 2 Mecklenburg
 3 Anson; Union
- 11 1 Alleghany; Surry; Yadkin
 2 Caldwell; Avery; Watauga
 3 Wilkes; Ashe
- 12 1 Cleveland; Gaston; Lincoln
 2 Alexander; Catawba; Iredell
- 13 1 Burke; McDowell; Rutherford; Mitchell
 2 Buncombe; Madison; Yancey
- 14 1 Transylvania; Henderson; Polk
 2 Haywood; Jackson; Swain
 3 Cherokee; Clay; Graham; Macon

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION & DISTRICT ENGINEER LISTING

*Indicates Professional Engineer

D I V	Division Engineer Div. Maint. Engr. Div. Constr. Engr. Div. Operations	Address/ C.S. No.	Telephone	D I S T		Address	C.S. No.	Telephone
1	* D.R. Conner * A.W. Roper * R.E. Capehart	PO Box 850 Edenton 27932 10-62-26	252-482-		*	J PO Box 1405 Elizabeth City R PO Box 748 Ahoskie 27910 B PO Box 928 Plymouth 27962	10-31-04 10-12-05 16-15-01	252-331-4737 252-332-4021 252-793-4568
2	* C. E. Lassiter * N.A. Brown * E.B. Latham * G.F. England	PO Box 1587 Greenville 27835 01-44-25	252-830-	1 2 3	*	D 1701 W. 5th St. Washington A 209 S. Glenburnie Rd. New 28560 R 1629 Hwy 258S Kinston	16-05-01 16-60-04 01-23-26	252-946-3689 252-514-4716 252-527-0053
3	* D.J. Bowers * R.W. Cates * J.E. Blair * H.A. Pope	124 Division Dr. Wilmington 04-11-03	910-251-	1 2 3	*	D 410 New Bridge St. Suite 7A Jacksonville 28540 K 220 N. Blvd. Clinton 28328 D 300 Div. Dr. Wilmington 28401	11-03-31 11-31-04 04-11-03	910-346-2040 910-592-6174 910-251-2655
4	* D.R. Dupree * G.A. Eason * J.H. Hoskins * J.C. Eatmon	PO Box 3165 Wilson 27893 01-53-26	252-237-	1 2 3	*	B PO Box 98 Halifax 27839 L 3013 US 64A Nashville 27866 R 2671 US 70W Goldsboro 27530	07-43-10 07-73-07 01-10-01	252-583-5861 252-459-2128 919-731-7938
5	* W.S. Varnedoe * R.E. Greene * J. Hopkins	2612 N. Duke St. Durham 27704 17-27-03	919-560-	1 2 3	*	R 4009 District Dr. Raleigh 27607 J 815 Stadium Dr. Durham 27704 S PO Box 205 Henderson 27536	51-31-00 17-27-03 07-23-13	919-733-2814 919-560-6854 919-492-0111
6	* J.G. Nance (Acting) * T.L. Conrad * G.W. Burns	PO Box 1150 Fayetteville 14-55-24	910-486-	1 2 3	*	R PO Box 2157 Lumberton 28359 R PO Box 1150 Fayetteville R PO Box 27 Whiteville 28472	14-92-03 14-55-24 04-21-04	910-618-5546 910-486-1496 910-642-3760
7	* J.W. Watkins * J.M. Mills * E.M. Cowan * R.L. Willis	PO Box 14996 Greensboro 27415- 02-16-44	336-334-	1 2 3	*	T PO Box 766 Graham 27253- S PO Box 14996 Greensboro 27415-4996 S PO Box 2513 Reidsville 27323	17-40-02 02-16-44 02-29-27	336-570-6833 336-334-3161 336-634-8144
8	* W. F. Rosser * L.A. Kelly * T. Johnson * G.R. Sproles, Jr.	PO Box 1067 Aberdeen 28315 03-51-05	910-944-	1 2 3	*	J PO Box 1164 Asheboro 27203 J PO Box 1067 Aberdeen 28315 W 219 Clemmer Road 28379	13-62-07 03-51-05 03-80-04	336-621-7821 910-944-7821 910-582-7075
9	* D.B. Waters * M.T. Patton * M.D. Moore	2125 Cloverdale Winston-Salem 27103 13-12-04	336-761-	1 2	*	C 4770 S. Main St. Salisbury M 2125 Cloverdale Ave. Winston-Salem 27103	05-31-01 13-12-04	704-639-7560 336-761-2410
10	* B.G. Payne * B.S. Moose * A.W. Whitmore * L.N. Gordon	716 W. Main St. Albemarle 28001 03-21-01	704-982-	1 2 3	*	J 615 Concord Rd. Albemarle D PO Box 190 Newell 28126 P 130 S. Sutherland Ave. Monroe 28112	03-21-01 05-13-10 03-05-02	704-982-0104 704-596-6900 704-289-1397
11	* W.E. Hoke * T.L. Absher * J.W. Bowman * R.C. McCann	PO Box 250 N. Wilkesboro 28659 15-13-32	336-667-	1 2 3	*	W PO Box 558 Elkin 28621 M PO Box 1460 Boone 28607 D PO Box 250 N. Wilkesboro	09-80-02 15-91-02 15-13-32	336-835-4241 828-265-5380 336-667-9117
12	* R.W. Spangler * J.C. Lamb, Jr. * D.C. Grissom * J.L. Ruppe	PO Box 47 Shelby 28150 06-53-03	704-480-	1 2	*	C PO Box 47 Shelby 28150 J PO Box 1107 Statesville 28687	06-53-02 09-33-19	704-480-5402 704-876-3947
13	* W.D. Smart * R.M. Crisp * J.G. Buckner * R.S. Lance	PO Box 3279 Asheville 28802 12-60-02	828-251-	1 2	*	S Rt. 1, Box 169C Marion 28752 K PO Box 3279 Asheville 28802	12-91-02 12-60-02	828-652-3344 828-298-2741
14	* F.D. Martin * J. J. Swain, Jr. * R.G. Watson * L.M. DeHart	PO Box 37 Sylva 28779 08-23-15	828-586-	1 2 3	*	E 4142 Haywood Road Horse Shoe 28742 C PO Box 250 Bryson City 28713 J PO Box 1551 Andrews 28901	06-98-20 08-30-03 08-54-01	828-891-7911 828-488-2131 828-321-4105
*J. D. Goins, Chief Engineer - Operations						PO Box 25201 Raleigh 27611	51-31-00	919-733-7621
*C. A. Gardner, Jr., Deputy Chief Engineer - Operations						PO Box 25201 Raleigh 27611	51-31-00	919-733-2330
*D. A. Allsbrook, Jr., State Maintenance Engineer						PO Box 25201 Raleigh 27611	51-31-00	919-711-1122

REV. 10/27/97

8/21/98

http://www.doh.dot.state.nc.us/operations/DOT_elist.htm

US ARMY CORPS OF ENGINEERS

RALEIGH REGULATORY FIELD OFFICE
Office Symbol: CESAW-RG-R
US Army Corps of Engineers
6508 Falls of the Neuse Road, Suite 120 Raleigh,
North Carolina 27615
(919) 876-8441
Fax Number: (919) 876-5823

KEN JOLLY, Office Manager
EXT 22
THELMA HEMMINGWAY, Regulatory Program Assistant - EXT 28
MATTIE JONES, Regulatory Program Assistant
EXT 21
TODD TUGWELL, Biologist (Co-op) - EXT 26

County Assignments:

ERIC ALSMEYER, Project Manager
EXT 23
* NC Department of Transportation (all
Raleigh Field Office Counties)
* WAKE

JEAN MANUELE, Project Manager - EXT 24
* CHATHAM * DURHAM
* EDGECOMBE * FRANKLIN
* GRANVILLE * HALIFAX
* JOHNSTON * LEE
* NASH * NORTHAMPTON
* VANCE * WARREN
* WILSON

JOHN THOMAS, Project Manager - EXT 25

* ALAMANCE * ALLEGHANY
* ASHE * CASWELL
* DAVIDSON * DAVIE
* FORSYTH * GUILFORD
* ORANGE * PERSON
* RANDOLPH * ROCKINGHAM
* STOKES * SURRY
* WILKES * YADKIN

ASHEVILLE REGULATORY FIELD OFFICE
Office Symbol: CESAW-RG-A
US Army Corps of Engineers
151 Patton Avenue, Room 143
Asheville, North Carolina 28801-5006
Voice (828) 271-4854
Fax (828) 271-4858

ROBERT JOHNSON, Office Manager
(828) 271-4855
NANCY WALLACE, Regulatory Program Assistant -
(828) 271-4854

County Assignments:

STEVE LUND, M.S., PWS, Project Manager
(828) 271-4857
* NC Department of Transportation (all Asheville Field
Office Counties)
* MECKLENBURG (Individual Permits Only)

DAVID BAKER, Proj. Manager - (828) 271-4856

* AVERY * BUNCOMBE
* CHEROKEE * CLAY
* GRAHAM * HAYWOOD
* HENDERSON * JACKSON
* MACON * MADISON
* MITCHELL * SWAIN
* TRANSYLVANIA * YANCEY

STEVE CHAPIN, PSS, Proj.Mgr (828) 271-4014

* ALEXANDER * BURKE
* CABARRUS * CALDWELL
* CATAWBA * CLEVELAND
* GASTON * IREDELL
* LINCOLN * MCDOWELL
* MECKLENBURG (Except Individual Permits)
* POLK * ROWAN
* RUTHERFORD * STANLY
* UNION * WATAUGA

WASHINGTON REGULATORY FIELD OFFICE
Office Symbol: CESAW-RG-W
US Army Corps of Engineers
Express Mail: 107 Union Drive, Suite 202
Washington, NC 27889
Post Office Box 1000
Washington, North Carolina 27889-1000 Voice:
(252) 975-1616
Fax Number: (252) 975-1399

DAVID LEKSON, PWS, Off Manager EXT 22
MARY GARDNER, Regulatory Program Assistant
EXT 21
SUE MOODY-DUVAL, Office Clerk - EXT 28

County Assignments:

MIKE BELL, M.S., PWS, Proj. Manager - EXT 26
* NC Department of Transportation (all
Washington Field Office Counties)

BILL BIDDLECOME, Project Manager - EXT 27
* BEAUFORT
* CARTERET (Croatan National Forest only)
* CRAVEN * GREENE
* JONES * LENOIR
* PAMLICO * WAYNE

RALEIGH BLAND, PWS, Project Manager - EXT 23
* CORPS-CAMA Joint Permit Program (all Washington
Field Office Coastal Counties)
* MAJOR ENFORCEMENT (all Washington
Field Office Counties)

TOM WALKER, Project Manager - EXT 24
* CURRITUCK * DARE
* HYDE * TYRRELL
* WASHINGTON

HENRY WICKER, Project Manager - EXT 25
* BERTIE * CAMDEN
* CHOWAN * GATES
* HERTFORD * MARTIN
* PASQUOTANK * PERQUIMANS
* PITT

WILMINGTON REGULATORY FIELD OFFICE
Office Symbol: CESAW-RG-L
US Army Corps of Engineers
Express Mail: 69 Darlington Avenue,
Wilmington, NC 28403
Post Office Box 1890
Wilmington, North Carolina 28402-1890
Voice: (910) 251-4511
Fax Number: (910) 251-4025

ERNEST JAHNKE, M.S., PWS, Office Manager
(910) 251-4467
RITA SHAVER, Regulatory Program Assistant
(910) 251-4633
ELIZABETH COLVIN, Off Clrk- (910) 251-4635
LATISE STOKES, Office Clerk - (910) 251-4639
KIM WOLFER, Biologist (Co-op)(910) 251-4611
DAVID RABON, Biologist(Co-op)(910)251-4611

County Assignments:

DAVID TIMPY, M.S., Proj Mgr - (910) 251-4725
* NC Department of Transportation (all Wilmington
Field Office Counties)

ALLEN DAVIS, Proj Manager - (910) 251-4466
* ANSON * BRUNSWICK
* CUMBERLAND * HARNETT
* HOKE * MONTGOMERY
* MOORE * RICHMOND

JEFF RICHTER, Project Manager - (910) 251-4636
* CORPS-CAMA Joint Permit Program (all
Wilmington Field Office Coastal Counties)
* MAJOR ENFORCEMENT (all Wilmington
Field Office Counties)

SCOTT MCLENDON, M.S., Project Manager - (910)
251-4725
* BLADEN * COLUMBUS
* NEW HANOVER * ROBESON
* SAMPSON * SCOTLAND

MICKEY SUGG, Project Manager - (910) 251-4811
* CARTERET * DUPLIN
* ONSLOW * PENDER

BEST COPY AVAILABLE

OTHER AGENCIES NOT REPRESENTED ON THE PREVIOUS PAGES

Division of Environmental Health

North Carolina Department of Environment and Natural Resources

P.O. Box 29596

Raleigh, NC 27626-0596

Engineering Division

North Carolina Department of Insurance

410 North Boylan Avenue

Raleigh, NC 27603

(919) 733-3901

Environmental Health Services Section

Division of Environmental Health

P.O. Box 29534

Raleigh, NC 27626-0534

National Flood Insurance Program Branch

North Carolina Division of Emergency Management

North Carolina Department of Crime Control and Public Safety

116 West Jones Street

Raleigh, NC 27603-1335

(919) 733-5392

On-site Wastewater Section

Division of Environmental Health

P.O. Box 29594

Raleigh, NC 27626-0594

(919) 733-2895

**NORTH CAROLINA GENERAL STATUTES
RELATED TO PROCEDURES FOR THE
DESIGN AND CONSTRUCTION
OF PUBLIC SCHOOL FACILITIES**

The following general statutes relate to procedures for the design and construction of public school facilities. Texts of the statutes may be found in the School Planning publication entitled *Selected Laws Relating to the Construction and Repair of Public School Facilities in North Carolina*.

<u>STATUTE</u>	<u>TITLE</u>
44A-26	Bonds required.
58-193	Commissioner to inspect State Property; plans submitted.
115C-81(b)	Basic education program
115C-276	Duties of superintendent
115C-426	Uniform budget format (Capital Outlay Fund)
115C-458 - 467	Loans from State Literary Fund
115C-472.5	Computer Loan Revolving Fund
115C-489.1 - 489.4	Critical School Facility Needs Fund
115C-517	Acquisition of sites.
115C-518	Disposition of school property.
115C-521	Erection of school buildings.
115C-524	Repair of school property; use of buildings for other than school purposes.
115C-525	Fire prevention.
115C546.1; 546.2	Public School Building Capital Funds (ADM Funds).
133-1	Employment of architects, etc., on public works when interested in use of material prohibited.
133-1.1	Certain buildings involving public funds to be designed, etc., by architect or engineer.
133-2	Drawing of plans by material furnisher prohibited.
133-3	Specifications to carry competitive items; substitution of materials.
133-4	Violation of chapter made misdemeanor.
136-18	Powers of Department of Transportation.
143-64.31	Declaration of public policy.
143-64.33	Written exemption of particular contracts.
143-64.33	Advice in selecting consultants or negotiating consultant contracts.
143-128	Requirements for certain building contracts.
143-129	Procedure for letting of public contracts; purchases from federal government by State, counties, etc.
143-129.1	Withdrawal of bid.
143-130	Allowance for convict labor must be specified.
143-131	When counties, cities, towns and other subdivisions may let contracts on informal bids.

STATUTE

TITLE

143-132	Minimum number of bids for public contracts.
143-134.1	Interest on final payments due to prime contractors.
143-135	Limitation of application of Article.
160A-20	Installment Financing.



U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)



NOTICE

REPRODUCTION BASIS



This document is covered by a signed “Reproduction Release (Blanket) form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a “Specific Document” Release form.



This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either “Specific Document” or “Blanket”).