



NC State University

**“NCRC WILL BE THE GLOBAL LEADER
FOR NONWOVENS RESEARCH AND
EDUCATION.”**

(Industrial Advisory Board, May 2004)

PROSPECTUS

NONWOVENS COOPERATIVE RESEARCH CENTER

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HISTORY

The **Nonwovens Cooperative Research Center** (NCRC) was established as a State/Industry-University Cooperative Research Center (State/IUCRC) in 1991 as a result of a grant from the National Science Foundation (NSF). The NSF grant was matched by the State of North Carolina and grants from the nonwovens industry. The grants from the industry were in the form of membership dues. In addition to these sources, the Center has received and continues to receive grants, contracts and gifts from the industry.

The NSF grant was for a maximum of 8 years. NCRC continues to receive funding from the State of North Carolina. NCRC's State budget has become a permanent part of the State allocation. Today, NCRC has a budget of about \$1.00 MM per year from the State and the industry.

CHARTER

The **Nonwovens Cooperative Research Center** (NCRC) serves the nonwovens industry through fundamental and applied research in the technologies of the industry and an active program of technology transfer. The Center has developed **core research**, **non-core research**, and **technology transfer** activities.

Core research programs are developed jointly by the Center faculty/staff and the NCRC member companies. **Core** research programs focus on areas such as

- **the development of new materials**
- **the modification of existing materials**
- **basic studies that lead to a better understanding of technologies**
- **applied research directed at process material – property relationships**
- **the development of instrumentation and test methods for nonwoven fabrics.**

Core research programs are supported by funds from the **State of North Carolina** and fees from NCRC **member companies**. The results of the research are proprietary to the NCRC and **to all member companies of the Center**. This information is placed in the public domain, through **presentations and publications, poster presentations, software, and patent disclosures, only after the approval of the Industrial Advisory Board (IAB)** of NCRC. The policies governing the ownership of intellectual property are discussed under the policy section.

A **non-core** research program focuses on one or more of the above objectives but is carried out for an individual company. The single company sponsored programs can be proprietary and are made public only if the sponsoring company agrees. Non-core projects of special interest can also be developed for a group of NCRC member or affiliate companies. The results of such research are made public only if the sponsoring companies agree.

The Center carries out an active program of **technology transfer** supported by funds from the **State of North Carolina** and **industrial members**. This program seeks to disseminate technology developed by the Center along with existing knowledge of the management of materials and processes. Such programs are provided in the form of:

- **training and assistance in the implementation of Center developed technology**
- **courses taught at plant sites**
- **workshops at the Center**
- **industrial internships**
- **focused seminars, symposia, and conferences**
- **one-on-one consulting.**

To carry out its research mission, NCRC seeks out talent at North Carolina State University as well as other universities such as Georgia Institute of Technology, Clemson University, University of Georgia, Philadelphia University, University of Tennessee, University of California Davis and others. The faculty, staff, and students of these universities with the approval of the IAB undertake such cooperative research programs.

VISION

The Industrial Advisory Board of NCRC has adopted the following vision statement:

“NCRC will be the global leader for nonwovens research and education.”

The achievement of this aspiration is indeed a formidable task, for today’s nonwovens are highly complex, innovative, “engineered” products requiring a diverse set of expertise. Today, meaningful performance benefits and superior value are predominantly based on innovations in both the design of products, and on innovative materials these products are made of. This necessitates radically upgrading our research and development capability by bringing together a critical mass of very diverse top R&D talent. This is indeed the path NCRC has pursued since its inception ten years ago. We work with a number of US universities, and some even in Europe, who bring expertise to NCRC over the whole product supply chain. These are matched and complemented by our industrial partners who also cover the same range of expertise. Further, our industrial members are intimately involved in the core research undertaken by NCRC affiliated faculty. However, to truly live up to the expectation that NCRC will be the worldwide resource for nonwoven technologies, we must require that our facilities be expanded to include a high-speed, flexible, pilot scale manufacturing capability covering a broad spectrum of technologies. Our Partners’ Center of Excellence includes bicomponent meltblowing, spunbonding and high speed, state-of-the-art hydroentangling as well as a staple fiber web formation system. These unique capabilities, provide a one-of-a-kind pilot facility in North America. This facility will permit our industrial affiliates and others to engage in product development as well as process design, research and engineering. Coupled with a highly sophisticated set of analytical capabilities, NCRC has become “the worldwide resource for nonwoven technologies.” It is clear that along with evolutions in the industry, our roles in academic institutions also undergo redefinition. The establishment of the facility described above is part of our redefinition. This would not have been possible without the support of the administrative structure of the university system. Our administration has demonstrated complete trust in our vision in this regard and has made it possible for the new facility to be housed in a new high bay building on the Centennial Campus of the North Carolina State University, across from the College of Textiles.

Our expansion represents an investment of over \$12 MM. Our five-year strategic plan includes the addition and upgrading of all our existing capabilities in air-lay, wet-lay and needling.

ORGANIZATION

The organization of the Center is illustrated in Figure 1. The Center has developed **core research**, **non-core research**, and **technology transfer** activities. The Director coordinates the research activities of the Center, carried out by faculty, staff, and students of the participating universities. The **technology transfer** activities are developed and coordinated by an **Associate Director**, supported by a **Laboratory Research Specialist**.

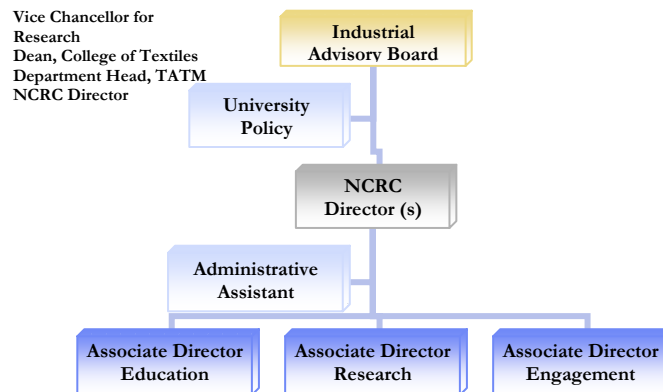
The Director supervises the overall operation of the Center. The Director is also responsible for:

- **recruiting new members and retaining existing ones**
- **long range planning of Center activities**
- **maintaining close relationships with the Industrial Advisory Board of the Center**
- **seeking IAB's assistance and counsel in matters related to membership and research needs.**

In addition to the Associate Director for Technology Transfer, the Center Director is assisted by an **Associate Director for Administration** who handles membership recruitment/maintenance functions and other coordination and administrative functions. Additional, support staff needs are met by an **Administrative Assistant**.

A **University Policy Committee**, consisting of senior staff of the University, the College of Textiles, and the Center Director, serves to facilitate smooth operation of the Center. A **Center Analyst** approved by the National Science Foundation (NSF) monitors the operation of the Center to ensure that NSF guidelines are met. Therefore, the Center Analyst plays a critical advisory role.

Figure 1. Organizational chart of NCRC



MEMBERSHIP

Membership in NCRC is governed by the Center Bylaws approved by the IAB. Any company, worldwide, involved in 1) manufacturing nonwoven roll goods, 2) converting roll goods into end use items, or 3) supplying machinery or raw materials to the nonwoven industry is entitled to be a member of the Center. There are different categories of membership available. The fee levels (please see attachment) for the membership are set by the IAB and are reviewed periodically. Present membership of the Center is listed at the end of this document.

a. **Members**

The companies with full Membership are represented on the IAB and have voting rights. Therefore, they directly influence the nature of the **core** research undertaken by the Center and monitor its progress. Their representatives are entitled to attend meetings of the Center where results of the **core** research programs are reported. They receive semi-annual progress reports and an annual report from the Center. Their staff members are entitled to attend workshops, training seminars, and research symposia organized by the Center, at reduced fees, mutually agreed upon by the IAB, the Center, and the College of Textiles administration.

b. **Affiliates**

Small and medium size companies may join as **Affiliates**. Affiliates pay an annual fee based on their average annual sales (see attachment). Affiliates do not have representation on the IAB, but are invited to attend its meetings. Their representatives are entitled to attend meetings of the Center where results of the **core** research programs are reported. They receive semi-annual progress reports and an annual report from the Center. Their staff members are entitled to attend workshops, training seminars, and research symposia organized by the Center, at reduced fees, mutually agreed upon by the IAB, the Center and the College of Textiles administration.

c. **Associates**

Non-profit organizations engaged in activities relevant to the Center may join as **Associates**. Associates pay an annual fee as established by the IAB. Associates do not have representation on the IAB, but are invited to attend its meetings. Their representatives are entitled to attend meetings of the Center where results of the **core** research programs are reported. They receive semi-annual progress reports and an annual report from the Center. Their staff members are entitled to attend workshops, training seminars, and research symposia organized by the Center, at reduced fees, mutually agreed upon by the IAB, the Center and the College of Textiles administration. **Associates** are not entitled to receiving **intellectual property**.

d. **Emeritus**

Emeritus membership is for individuals from NCRC member companies who have served NCRC over an extended period of time. Emeritus members do not pay an annual fee and can attend NCRC meetings at no cost. Emeritus members are not entitled to receiving **intellectual property**.

INDUSTRIAL ADVISORY BOARD

An **Industrial Advisory Board** (IAB) has been established. Each Member Company (not Affiliate or Associate) is represented on the IAB. The Board meets at least twice a year and gives advice on the nature of the core research programs carried out in the Center. Research proposals are developed by the faculty in consultation with Member companies based on their perceptions of the needs of the nonwoven

industry. The IAB helps prioritize these proposals for the funding decision. Progress reports of the research are presented to the IAB members and their technical representatives twice a year. The Board discusses the importance and quality of the results and recommends the Center's path forward.

The Board also monitors operational aspects of the Center. It plays an important role in the recruitment of new members. It sets policy with regard to membership criteria and operation of the Center by updating and modifying the Bylaws.

RESEARCH PROGRAMS

Core research programs are developed jointly by the Center faculty/staff and the IAB. Joint faculty/staff/industry Technology Focus Groups are key to this effort. Based on these discussions, projects are formulated by the faculty and presented to the IAB. Each IAB member assesses the usefulness of the proposed project and rates the project's usefulness and relevance to their business.

In addition to the core research programs, the Center also seeks to develop **non-core** research and development projects sponsored by companies on specific problems of **proprietary** or non-proprietary nature. The results of this research are the property of the sponsoring company, within the guidelines of the university. Member companies pay reduced "**indirect cost**" charges on direct costs (less equipment) in case of non-core research. Non-member companies pay the full indirect costs (on the order of 49% of the direct costs, less equipment).

A COPY OF THE MOST RECENT ANNUAL REPORT IS AVAILABLE UPON REQUEST.

Further information may be obtained from:

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Prospectus Attachments:

SCHEDULE OF DUES
LABORATORY USE CHARGES
LIST OF THESIS AND PUBLICATIONS
ON-GOING AND PROPOSED PROJECTS
MEMBERS, AFFILIATES AND ASSOCIATES
SELECTED ACCOMPLISHMENTS

SCHEDULE OF DUES

FULL MEMBERS (M1):	\$ 25,000 (TWENTY FIVE THOUSANDS DOLLARS) - \$7,500.00 credit towards the use of the facilities
FULL MEMBERS (M2):	\$ 20,000 (TWENTY THOUSAND DOLLARS)
AFFILIATES:	\$ 2,500 sales less than \$25 MM
ASSOCIATES:	\$ 2,500
EMERITUS:	\$ 0,000

LABORATORY USE CHARGE

Costs for short-range development or service projects are based on the use of laboratory equipment, involvement of personnel, and use of other services necessary to provide the required deliverables. Members and Affiliates receive the following discounts on laboratory use charges.

Membership Category	Cotton Inc Nonwovens Laboratory Other Laboratories
FULL MEMBERS	Up to 30%
AFFILIATES	Up to 20%

These discounts apply only if the rates do not fall below the University approved rates for the Federal Government.