Flad

ACCELERATING INNOVATION IN AGRICULTURE

AGRICULTURE & BIOSCIENCE EXPERTISE

CONTENTS

WHO WE ARE

FIRM AND EXPERTISE

95+
years of experience in planning and architecture

320+
dedicated staff to serve our clients

10
offices nationwide

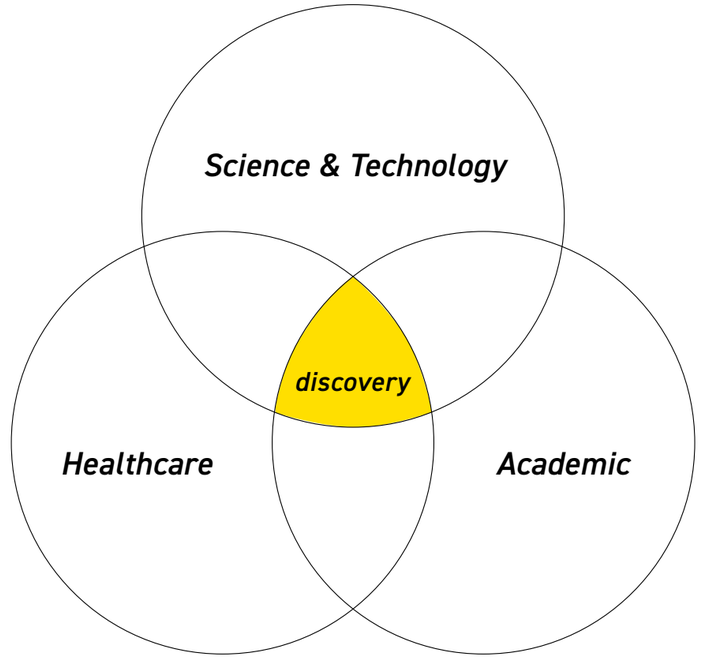
we create environments that enhance human potential®

Atlanta, GA · Boston, MA · Gainesville, FL · Madison, WI · New York, NY
Raleigh, NC · San Diego, CA · San Francisco, CA · Seattle, WA · Tampa, FL

30+
planners: laboratories, healthcare

350+
design awards

- Strategic and Master Planning
- Programming and Campus Planning
- Academic, Research and Medical Planning
- Site Planning and Landscape Architecture
- Architectural Design
- Structural Engineering
- Interior Design



PLANT SCIENCE AND AGRICULTURAL BIOSCIENCE PROJECTS

Our team's expertise in bio-agricultural research and education facilities spans more than 45 years, providing the highest quality designs that improve crop yield, advance agricultural innovation, and provide food safety. Our work spans the full range of bio-ag facilities – from plant sciences and the genetic manipulation of seeds and crops, to controlled environment agriculture and food systems research. We have designed some of the most sophisticated and technically complex facilities in the United States for academic, corporate, and federal clients.

Our significant science experience encompasses agricultural science projects designed for academic clients, the world's largest crop and seed companies, as well as state agricultural labs. These specialized facilities include greenhouses; environmental growth chambers; specialized light, temperature, and humidity control systems; and support rooms including media preparation, incubators, and darkrooms. In all, our firm has planned and designed more than five million square feet of sophisticated agriscience projects.

In addition to the projects featured in this book, the table (opposite) represents a sampling of our relevant experience.

Read More >>

Flad hosts inspiring Roundtable Discussion
Looking to the Future of Ag Science

	Health / Community Space	Interdisciplinary Research	BSL-2 Greenhouses	BSL-3 Capable Greenhouses	Growth Chambers	Flexible Laboratories & Support Spaces	External Partnerships (industry, federal, academic)	Training & Conference Center	Classrooms	Incubator / Corporate Partner Labs
Donald Danforth Plant Science Center Research Center Expansion	●	●			●	●	●	●		
Syngenta Advanced Crop Lab	●	●	●	●	●	●		●		
Syngenta RTP Innovation Center	●	●			●	●	●	●		
North Carolina State University Plant Sciences Building	●	●	●	●	●	●	●	●	●	●
Texas A&M University Plant Pathology and Microbiology Building	●	●	●		●	●		●	●	
Texas A&M University Dallas AgriLife Research Center	●	●	●		●	●	●	●		
The Ohio State University AgBioscience Facility and Greenhouses	●	●	●	●	●	●	●		●	
Texas A&M University AgriLife Rio Grande Valley Research Center at McAllen	●	●			●	●	●			
CUNY Advanced Science Research Center	●	●				●	●	●		●
University of Alberta Centennial Centre for Interdisciplinary Science	●	●			●	●		●	●	
University of Wisconsin-Milwaukee Kenwood Interdisciplinary Research Complex	●	●			●	●			●	●
University of Wisconsin-Milwaukee Biological Sciences Research & Instructional Greenhouse		●	●		●	●				
University of Saskatchewan Collaborative Science Research Building	●	●	●		●	●	●			
Auburn University Agricultural Sciences Research Building	●	●				●		●	●	
Purdue University Agricultural and Biological Engineering Building	●	●				●	●		●	
Washington State University Wenatchee TFREC Plant Growth Facility		●	●		●	●	●	●		
University of Georgia Poultry Science Complex		●				●	●	●	●	●

AWARDS AND NATIONAL RANKINGS

National Rankings

Building Design+Construction Giants

2 Laboratory Architecture
5 Science & Technology Architecture

350+
design awards

100 AIA Awards
39 IIDA Awards
8 Lab of the Year Awards
5 ISPE Facility of the Year Awards

HOW WE WORK

PUTTING PEOPLE FIRST

Creative thinking and the joys of delivering a solution based on shared values produces powerful results. Every time.

Every project is founded in an understanding that there is an important need and a promise of transformation. We are driven to build a collaborative of people that form a high-performance team, setting the stage for confidence and the belief that we will deliver the right project for long-term success.

Aligning the principal stakeholders with capable professionals who want the best for their institution and are willing to work hard to achieve that is key. We gather principal stakeholders together to focus on purpose, vision, facts, goals, needs, and concepts that define the greater truth for the project, shaping the right design solutions.

A communication plan is equally essential to every project, ensuring stakeholders feel their voice is heard and that they can shape their future. It also helps manage expectations and provides a framework for decision making, conflict resolution, creating an audit trail for the work, and ensuring that the status of the project is shared accurately with everyone on campus over time.

THE SCIENTIFIC WORKPLACE

Transforming the scientific workplace to address next-generation treatments.

Our clients don't work on small problems. They are tackling challenges that will change people's lives. Feeding a growing world population. Achieving global food security and ensuring food safety. Developing technologies to take on the effects of a changing climate. We're not talking about buildings; we're talking about the people inside them and the meaningful solutions they create for our world's biggest agricultural challenges. This is the inspiration behind our work – it's the passion that drives every plan, every process, and every detail.

Flad is recognized as a global leader in the design of major science and technology facilities. Our practice entails the full range of bio-ag facilities designed to harness the collective power and vitality of interdisciplinary teams that reach across all aspects of the research, development, and production pipeline. Our design philosophy is highly collaborative, recognizing that the best ideas are derived from a close integration with our clients. Our legacy of repeat clients and extensive portfolio of specialized experience provides measurable evidence of how strongly we value our culture of outstanding client service.

Applying world-class science to address our global society's biggest agricultural challenges requires world-class facilities that can support the changing needs of scientific research. Flad's extensive knowledge of greenhouse and growth chamber environments, laboratories, and scientific workspace has been developed and honed working with clients across industries for over 40 years to create facilities that address both initial and long-term needs. As architects, we leverage our experience to guide the right decisions at the onset and to minimize the risk of costly delays. Working collaboratively with owners, our fully integrated approach to design will help build a facility that achieves performance goals while providing the highest and best use of capital investment dollars.

LIVING OUR VALUES

We honor the creative spirit and innovation in all things.

We foster an environment of trust, integrity, and respect.

We embrace both individual initiative and collaboration.

We are trusted partners to our clients.

We are committed to the health and well-being of our communities and the planet.

In partnership with leading research organizations, universities, healthcare institutions, and science-based companies, we design beautiful, innovative environments that enable our clients to make revolutionary discoveries that have a profound impact on society. We are dedicated to providing exemplary service to our clients. Fostering this collaborative approach allows us to challenge assumptions, solve unique problems, and help our clients achieve their mission through the lens of design. Our environments are an extension of our client's enterprise, celebrating their talent and reinforcing their brand and culture. Our solutions are customized, mission-driven, and transparent – increasing efficiency, productivity, and identity.

SELECT PROJECTS

North Carolina State University,
Plant Sciences Building

supporting the future of ag science partnerships

Located on NC State's Centennial Campus, this research facility provides modern infrastructure for plant science advancement, fosters collaboration among agricultural enterprises across the state, and aims to become North America's premier plant science research center.

From the outset, the design addressed the need to support unassigned research faculty and rotating industry partners. The space program was organized around scientific capabilities rather than specific investigators. Corporate partner suites function as incubator labs with access to shared support spaces, offices, and building amenities. The building also includes BL-2P and BL-3P rooftop greenhouses and headhouses.

Programmatic Components

85,000 GSF
Advanced Ag Science Research Laboratories
Office / Workplace / Amenities
Research Greenhouse / Headhouse / Growth Chambers
Core Laboratories / Corporate Partner Laboratories
Demonstration and New Technologies Laboratory

Awards

LEED Gold
U.S. Department of Energy Building Envelope Campaign, Novel 20 Award
USGBC Carolinas Awards
Metal Construction Association Design Award
IIDA Carolinas DesignWorks Award, Higher Education

View the video >>


SEEDS OF
GROWTH

Texas A&M University,
Dallas AgriLife Research Center

a showpiece for urban agriculture

Envisioned as one of the nation's premier agricultural research and education centers, the facility establishes an architecturally significant presence aligned with the AgriLife mission to support urban agricultural research, education, industry collaboration, and community training. Designed with the next generation of students and researchers in mind, the program emphasizes cross-disciplinary learning to help prepare a future-ready workforce.

The facility is organized around the concept of science in sight, making research and extension programs visible throughout the building and site. Flexible planning supports both current and future grant-funded research, while collaborative spaces integrated along daily circulation paths encourage interaction and new ways of working.

Programmatic Components

58,000 GSF
Advanced Ag Science Research Laboratories
Office / Workplace / Amenities
Research Greenhouse / Headhouse / Growth Chambers
Research and Extension Workplace and Testing Labs
Federal / State / Corporate Research Partner Spaces

Awards

IIDA Carolinas DesignWorks 2020 Award
ENR Texas and Louisiana,
Higher Education-Research Best Project

Design architect and laboratory planning – in collaboration with Architect of Record, VAI Architects.

Purdue University,
Agricultural and Biological Engineering Building

engineering solutions to global challenges

Encompassing a 125,000-square-foot addition and a 37,000-square-foot renovation to the existing Agricultural and Biological Engineering Building, this project provides much-needed research space to support growth in both graduate and undergraduate enrollments. The new design consolidates department research throughout nine campus buildings into a state-of-the-art engineering facility supporting food engineering, machine systems, water and environmental research, bio-process and biological engineering, teaching, and support spaces.

The renovated areas house offices for faculty, staff, and some graduate students, as well as support spaces for students. A new four-story addition provides two classrooms large enough to accommodate the department's growing undergraduate enrollment, teaching labs to support the full range of laboratory experiences needed by instructional programs, makerspaces to support student discovery and creativity, graduate student offices, and modern laboratories to support research endeavors.

Programmatic Components

162,000 SF
Advanced Ag Science Research Laboratories
Student / Faculty Research Laboratories
Instructional Laboratories
Flexible Classrooms / Makerspace
Office / Workplace / Amenities

Certification

LEED Silver

Laboratory programming and planning, architectural design (SD), interior design (SD) – in collaboration with architect of record MSKTD & Associates.

Syngenta,
RTP Innovation Center

a new agricultural science paradigm

With a goal of maximizing opportunities for staff interaction, fostering collaboration among different research groups, and showcasing R&D innovations to visiting partners, Syngenta has created a new consolidated home for its agricultural biotechnology research and administration groups as the second phase of development on its new campus in Research Triangle Park.

A ribbon of community space flows from the main entry through the complex to the courtyard in the center of campus, connecting the laboratory and administration wings with the first phase Crop Lab, unifying all functions, and supporting a single corporate culture. This atrium is a magnet for activity, designed to maximize interaction and link research and non-research people and program spaces. Shared site amenities along this route include a cafeteria, conference center, training rooms, fitness room, and wellness suite. Supporting interactions among project teams, collaborative areas of varying sizes throughout the atrium, both wings, and out to the exterior courtyard turn the entire site into a cohesive workplace.

Programmatic Components

207,000 SF
Advanced Ag Science Research Laboratories
Office / Workplace / Amenities
Research Growth Chambers
Academic / Industry / Government Collaborations
Corporate Branding Integration

Certification

3 Green Globes


EXIT

Texas A&M University,
Plant Pathology and Microbiology Building

strengthening and enhancing opportunity

In support of Texas A&M's commitment to collaborative cutting-edge research, the university has created a new home for the Department of Plant Pathology and Microbiology, relocating it within the Agriculture and Life Sciences Campus to expand and strengthen cross-discipline opportunities. The new building's two wings are arranged to provide secured research space as well as public instructional facilities, linked together through two stories of generous lobby areas and a grand central stair that provide social connection, a sense of community, and a home for the department.

The research environments feature flexible labs and a sectional rooftop greenhouse, all with the capability to support scientific endeavors as they evolve and change. Faculty offices and shared graduate assistant work areas are directly adjacent to the labs. Instructional areas include a 300-seat auditorium; several multipurpose, technology-enabled classrooms; and two teaching labs serviced efficiently by a large, adjoining prep area and plant growth room.

On the exterior, the building's canopy-covered porch functions as both social and visual connector to the campus-at-large, promoting the department and enabling public outreach through display and demonstration of its contributions to plant health as well as food safety and security.

Programmatic Components

83,300 SF
Advanced Ag Science Research Laboratories
Office / Workplace / Amenities
Research Greenhouse / Headhouse / Growth Chambers
Student / Faculty Research Laboratories
Teaching Laboratories / Auditorium / Flexible Classrooms

Donald Danforth Plant Science Center, Research Center Expansion ⓘ

an addition to an icon

Advancing its mission to improve the human condition through plant science, the Donald Danforth Plant Science Center continues to expand its research capabilities. Building on the iconic design of the original facility, the addition provides flexible space that supports modern scientific equipment and improves operational efficiency, addressing the Center's growing demand for data, informatics, and advanced analytical tools.

Flad implemented an open-plan lab and office environment that removes barriers to collaboration while optimizing shared equipment and allowing space for focused work. Research areas include bioenergy, crop improvement and productivity, medicinal applications, tissue culture, and crop transformation.

The addition supports ten new research groups with open laboratories, flexible offices, expanded analytical labs, makerspace and growth chambers, along with a three-story café that serves as a central social hub. The facility also supports collaboration with academic, industry, and federal partners.

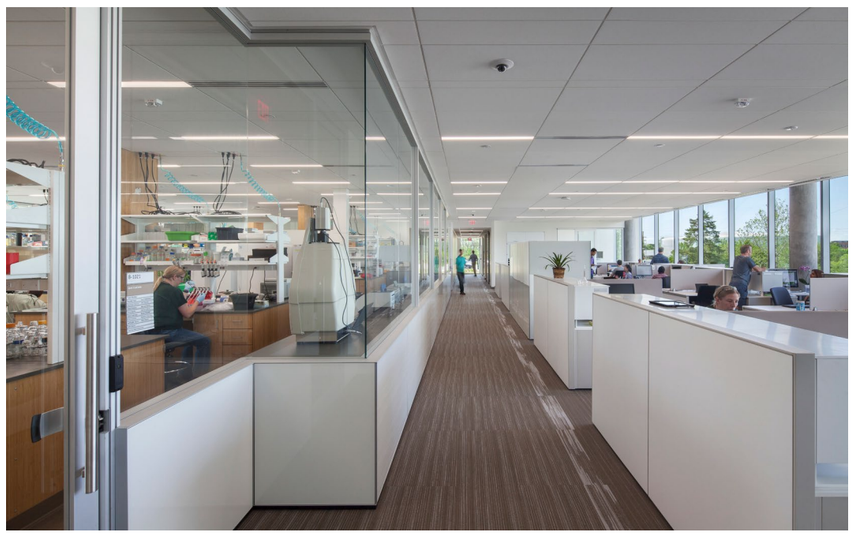
Programmatic Components

75,000 GSF
Advanced Ag Science Research Laboratories
Office / Workplace / Amenities
Core Laboratories
Academic / Industry / Government Collaboration

Certification

LEED Gold

Flad planned and designed all scientific workplace and research spaces – collaboration with Christner, Inc., architect of record and building exterior and interior public space designer.



Syngenta,
Advanced Crop Lab

growing agricultural biotech research

In conjunction with a master plan for Syngenta's new 50-acre campus in Research Triangle Park, Flad also planned and designed the site's first phase of development, the Advanced Crop Lab. This state-of-the-art research greenhouse has the ability to sustain a wide variety of growing conditions critical to Syngenta's research and product development, facilitating continued advances in multiple stacked traits and cross-functional products. Open office and conference spaces accommodate staff outside the greenhouse area, and a multipurpose lobby and gathering space leads to a skylit tour path for community visitors.

A sophisticated growing environment with over an acre of under-glass space, the facility is designed to manage specific processes and workflows. Its modern design features a white powder coat structure and diffused glass developed in Germany. The laboratory growth chambers are equipped to control all environmental variables and precisely measure plant responses, allowing research to simulate any growing condition on the planet. The modular chambers are also designed to be BSL-3 capable.

Programmatic Components

136,000 SF
Advanced Ag Science Research Laboratories
Office / Workplace / Amenities
Research Greenhouse / Headhouse / Growth Chambers
Academic / Industry / Government Collaborations
Corporate Branding Integration

Certification

3 Green Globes

University of California, Davis, Winery, Brewery, and Food Science Laboratory

research and innovation

Agricultural heritage and scientific inquiry define a new place and new ways of learning for programs in viticulture, brewing, and food processing at UC Davis. The building looks both toward an academic community and beyond to the region's agricultural heritage, inspired by those farm structures where clarity is fundamental to sustainability and informed simplicity can attain the poetic.

The facility is an extended research and teaching environment, integrating bench-top science with applied process technologies and carrying academic investigation forward to industrial application. It is a living model, where the effectiveness of energy-efficient technologies is directly monitored and demonstrated, educating students in production processes and operating procedures in a highly sustainable setting.

Entirely donor-funded, this LEED Platinum building houses the world's first LEED Platinum winery, brewery, and food-processing pilot plant – the first process science building to attain this level of performance.

Programmatic Components

32,300 SF
Advance Ag Science Research Laboratories
Office / Workplace / Amenities
Student / Faculty Research & Production Laboratories
Academic / Industry Collaborations

Certification

LEED Platinum

University of Kentucky, College of Agriculture, Food and Environment, Agricultural Research Building

supporting the next generation of ag scientists

A new 277,860-square-foot research facility at the University of Kentucky will advance innovative agricultural research while replacing aging laboratory buildings slated for demolition to allow expansion of the university hospital. Serving as the primary research and teaching hub for the College of Agriculture, Food and Environment (CAFE), the building brings faculty, staff, and students together to foster interdisciplinary collaboration and student discovery.

Designed to achieve a minimum of LEED Silver certification, the facility supports programs including animal science, entomology, horticulture, plant science, plant pathology, and soil science. Specialized environments include rooftop greenhouses, growth chambers, and insect laboratories. Instructional spaces feature classrooms, teaching labs, and a flexible 250-seat auditorium for lectures and public events.

The facility strengthens applied research, external partnerships, and CAFE's mission to prepare future agricultural leaders.

Programmatic Components

277,860 SF
Advanced Ag Science Research Laboratories
Research Greenhouse / Growth Chambers
Teaching Laboratories / Flexible Classrooms
Insect Laboratories
Auditorium
Industry & Academic Partnerships

KWS Saat AG, North American Research Center Laboratory Fit-up

sustainable seeding for the future

In support of breeding crops that promote sustainable, resource-efficient, and ecologically friendly farming, this client expanded its reach into North America with the establishment of a new research center within an existing bio-research and development park. This fit-up of existing shell space in a bioresearch incubator building accommodates approximately 40 researchers and staff. Research space includes a molecular research lab, a transformation lab, growth chambers, and central lab support. The growth chambers are climatically controlled to conditions required for specific plant research.

The space is designed to achieve a number of goals including transparency between lab and work areas, flexibility for efficient and quick workspace reconfiguration, creation of a platform to support an intensely collaborative work process, and access to natural light throughout.

Programmatic Components

13,200 GSF
Advanced Ag Science Research Laboratories
Office / Workplace / Amenities
Corporate Branding Incorporated

Laboratory planning – in collaboration with Architect of Record, Christner, Inc.

University of Saskatchewan, Collaborative Science Research Building

collaborative science research building

The University of Saskatchewan committed to building a new collaborative research facility to further the mission of the biology and agricultural departments, as well as create a new home for the Canadian government agency, the Global Institute for Food Security (GIFS), in support of interdisciplinary research and flexible growth environments for a wide range of research types. Flad assisted the university with establishing a viable project program, planning, and an architectural vision that focuses on collaborative research, providing a state-of-the-art crop research facility.

The building's design features an environment that fosters the work of collaborative teams for the development of innovative products. Rooftop greenhouses are situated adjacent to the research labs; these defining elements are an outward expression of the building's mission and establish the identity of agricultural research on campus.

Programmatic Components

72,000 SF
Advanced Ag Science Research
Laboratory / Greenhouse
Office / Workplace / Amenities

Certification

2 Green Globes

CLIENT LIST

Abbott Laboratories

Adaptive Biotechnologies

Allergan

Amgen

Auburn University

Bayer

BioMed Realty

California State University

Catalent

Centers for Disease Control and Prevention

The City University of New York

Clemson University

Cleveland Clinic

Colorado State University

Connecticut Department of Public Health

Donald Danforth Plant Science Center

Duke University

Eisai

Exact Sciences

Fujifilm Cellular Dynamics

Genentech

GlaxoSmithKline

Healthpeak Properties

Idaho National Laboratory

Iowa State University

Influenza Research Institute

The Jackson Laboratory

KWS Saat AG

Los Alamos National Laboratory

Mayo Clinic

MilliporeSigma

Mount Sinai Hospital

National Institute of Environmental Health Sciences

National Institutes of Health

National Renewable Energy Laboratory

Nektar Therapeutics

North Carolina State University

Northwell Health

Northwestern University

Novartis

Oak Ridge National Laboratory

The Ohio State University

Purdue University

Regeneron Pharmaceuticals, Inc.

Rutgers University

Seattle Children's Research Institute

Seattle Genetics

Seqirus

Syngenta

Takeda Pharmaceutical

Texas A&M University

Texas Biomedical Research Institute

Tufts University

University of Alberta

University of California, Davis

University of Florida

University of Georgia

University of Kentucky

University of Saskatchewan

University of Wisconsin-Madison

University of Wisconsin-Milwaukee

Virginia Tech

Washington State University

Wisconsin State Lab of Hygiene

Flad Architects is a national planning and design firm committed to creating environments that enhance human potential. In partnership with leading research organizations, universities, healthcare institutions, and science-based companies, Flad designs innovative facilities that enable revolutionary discoveries that have a profound impact on society.

Over 95 years of passionate and rigorous focus on buildings devoted to the sciences has earned Flad consistently high rankings among the top 20 architectural firms, both overall and in the specific areas of science & technology, academic, and healthcare design.

Flad.com

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