New agriculture facility 40 years in the making

By Lisa A. Hill
Lantern staff writer 3-13-85

What do you get when you combine tons of dirt, 40 years of planning and $12 million? The answer is the new Agricultural Administration Building.

The site for the building will be where the mounds of dirt are now located on the east side of the Agricultural Administration Building, near the bridge on Woody Hayes Drive.

Construction of the building is scheduled to begin within three months. Bids for the construction were received beginning Feb. 27, but a company has not yet been chosen. The architect and planning consultant is Firestone, Jaros, Mullin Inc., of Worthington. Plans to move into the building are set for June 1987.

The new building will have 87,500 square feet, or two acres, of floor space. The front part of the building will be two stories, with the second floor for offices. The first floor will consist of one lecture hall and a classroom, and specialized labs for such areas as farm mechanics, environmental research, food engineering, data processing, and drafting and design. A courtyard on the right side of the building will be 4,500 square feet, and will be used for large machinery repair.

Robert Holmes, professor of agricultural engineering, said when he was an undergraduate student at Ohio State from 1956-1962, he remembers his academic adviser discussing the idea of the new building. Holmes has a bachelor of science degree in agriculture, a master's and a doctorate.

When Holmes returned to Ohio State in 1974 as a faculty member, he began working on plans for a new building.

Holmes, who is also the chairman of the college's Capital Improvement Committee, said that capital improvement projects require checks and balances, which show that the taxpayers' money is being spent wisely.

Construction on the new Agricultural Administration Building is set to begin in three months. The facility will be built on the east side of the old Agricultural Administration Building, near the bridge on Woody Hayes Drive.

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“The Ohio Legislature appropriated the money for the building’s construction,” Holmes said.

He feels that the money being spent for the project will be an economic benefit for the entire state of Ohio because it will help agricultural production become better and cheaper.

“The new building will be a tremendous benefit to the agricultural engineering department and the whole Agricultural College,” said Kenneth Reisch, associate dean of the College of Agriculture.

This project will provide the modern equipment which is needed to upgrade the old engineering program, Reisch said.

Homes said the building is being constructed because Ives Hall, the current agricultural engineering building, is too small and inadequate for today's modern agricultural machinery.

“One of the special features of this building is that the rooms were designed to be flexible,” he said.

They will allow for changes as agricultural's research and technology needs grow.

“OSU will have one of the best agricultural engineering facilities with a good inventory of the state-of-the-art equipment, and when this project is completed, we will be more responsive to the engineering needs of the farmers and agricultural business people. The agricultural engineering students will be better equipped and trained, and should get a better education with the new and better facility,” Holmes said.
The new agricultural engineering building will be located on the north side of Woody Hayes Drive between the Agriculture Administration Building and Olentangy River Road. It is expected to be completed in the spring of 1987.

Ag engineers get new building

By Melinda Beer
Lantern staff writer 5-6-85

The only agricultural engineering program in Ohio will be herded from Ives Hall, the old university horse stables, to a new $11.6 million building.

The building is scheduled to be completed by the spring of 1987 so the program facilities can move to the new building, which will be located on the Agricultural Campus.

Robert Holmes, professor of agricultural engineering and chairman of the capital improvements committee, said the Peterson Company from Wapakoneta will begin construction of the building after May 6.

He said the building, funded through state capital improvement funds, will be located on the north side of Woody Hayes Drive between the Agriculture Administration Building and Olentangy River Road.

Ives Hall, the current agricultural engineering building, at Neil and Woodruff avenues, was converted from the university horse stables and carriage barn in 1922.

Jack Probasco, university facilities planner, said after the agricultural engineering department moves, the university plans to use Ives Hall as temporary space for classrooms and offices while other departments are being remodeled.

Holmes said Ives Hall is inadequate in terms of size, facilities and space for the agricultural engineering program.

"There is a need for more modern facilities for research, teaching and extension which will be beneficial to Ohio agriculture especially agricultural business," Holmes said.

The new building will have research labs, teaching labs, faculty offices and a few classrooms, Holmes said.

He said, "The new facilities will be made flexible because we do not know what will be the function of agriculture 10 years from now." The architecture will be the same style as the other buildings on the Agricultural Campus. The building will cover 92,000 square feet of land.

Holmes said the huge pile of dirt now at the new building site is there to compress the subsoil so it will be adequate to build upon.

Ground-breaking will take place 3 p.m. on May 17, among those expected to be there are Gov. Richard F. Celeste, President Edward H. Jennings and Dean of Agriculture Max Lennon.
NEWS ADVISORY

The Ohio State University will break ground Friday (5/17) for a new Agricultural Engineering Building that could pave the way to more productive farming techniques.

The new facility will be constructed between the Agricultural Administration Building and the Olentangy River on the north side of Woody Hayes Drive. Target date for completion is spring 1985.

President Edward H. Jennings will use a backhoe to break ground for the $12 million building during a ceremony at 3 p.m.

Remarks will be made by Jennings; Max Lennon, vice president for agricultural administration and executive dean of the College of Agriculture; and Donald D. Glower, dean of the College of Engineering. They will be introduced by Warren L. Roller, chairperson of the Department of Agricultural Engineering, which is part of both colleges. Parking will be available at the Agricultural Administration Building.

An open house for the agricultural engineering department will begin at 2 p.m. in room 215H of Ives Hall with comments from Roller and an explanation of the new building by Holmes. Parking will be available in the Northwest Parking Ramp, next to Ives Hall.

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The new Agricultural Engineering Building will provide expanded research facilities. One result should be improvements in farming techniques and, in turn, a boost to Ohio's agricultural economy, according to Robert Holmes, professor of agricultural engineering.

The department's current building, Ives Hall, at Neil and Woodruff avenues, was built in 1925 by joining and remodeling horse and implement barns. Ives does not have enough power and space to allow for the types of advanced technical research possible at the new building, Holmes says.

Improved facilities will enable engineers to perform research into more productive harvesting of crops, better drainage of soils, development of water supplies, and new and more efficient methods of processing food, he says.

The new 87,500-square-foot building will contain new equipment for data acquisition, process control, computer-assisted design and other computer-related needs. The ground floor will contain teaching and research laboratories. The second floor will feature office space for faculty, staff and graduate students. The lobby will house the Ohio Agricultural Drainage Hall of Fame. Outside will be an 8,000-square-foot machine courtyard for temporarily storing large farm equipment and for conducting outdoor laboratory exercises.

For information on the Agricultural Engineering Building, contact Holmes at 422-6798.
Agricultural building to open early

By Kevin R. Walter
Lantern staff writer

Construction on the $11.56 million Agricultural Engineering Building, 590 Woody Hayes Drive, is ahead of schedule and should be ready by January, said Robert Holmes, professor of agricultural engineering.

As it stands now, the agriculture engineering faculty will probably move by the first of January. The scheduled completion date was Jan. 21, 1987.

The new building, which is 92,500 square feet, will house administrative offices, classrooms, teaching and research labs, said Jim Papritan, assistant professor of agriculture engineering.

The building will also have a space that can accommodate large pieces of farm equipment, such as corn pickers and combines, which can be brought in to enable students to receive hands-on experience, Papritan said.

With the latest technology and the aid of computers, the building is state of the art, Papritan said.

The facility will be used by the Departments of Agricultural Engineering, Food Science and Nutrition and the Ohio Cooperative Extension Service.

Ives Hall, where the Department of Agricultural Engineering is now located, will undergo renovations and should be ready by fall quarter 1987 to house temporary offices for the School of Architecture and classrooms, said David Marsh, assistant vice-president of facility planning.
New ag building opens for classes

By Lynn Hamilton
Lantern staff writer

The new Agricultural Engineering Building opened on schedule for classes Monday, providing a long-awaited improvement in the agriculture engineering and mechanization facilities.

The $11.56 million building, at 590 Woody Hayes Drive, replaces Ives Hall, the previous location of the Department of Agricultural Engineering.

"Ives Hall was out of date and very poorly equipped when I was a student here in 1956," said Robert Holmes, professor of agricultural engineering.

Michael Brugger, associate professor of agricultural engineering, said, "In some ways it (the new building) is like going from horse and buggy to a nice modern car."

The 92,500 square foot building contains eight labs for undergraduate instruction in chemistry, power machinery, engines, food engineering, welding, woodworking, and farm equipment. Three classrooms, with a combined seating capacity of 188, will be used by the other agricultural departments as well, Brugger said.

"As it stands right now, there is not a better ag engineering facility in the country," Brugger said. A computer lab for undergraduate course instruction, a data acquisition lab and a learning resources center will also be available, he said.

Students using the building have favorable reactions. "It's more convenient for ag students," said Lynn Voltz, a junior from Ohio City majoring in animal science. She said it eliminates the difficulty of getting from agriculture campus to main campus for welding and woodworking classes.

Dale Gilliland, a senior from Nevada majoring in agricultural mechanization and systems, said the building will help make students more aware of the agriculture engineering and mechanics program. "I think it's an asset to the whole college," he said.

Holmes, who was the building design representative for the department, said the new facility will have far-reaching effects. "The real beneficiaries are going to be the people of Ohio," he said. "This building shouldn't cost them, it should pay them."

The facility will be a catalyst for the improvement of Ohio's agriculture, Holmes said. The modern building and updated equipment will attract top-quality faculty, which will improve instruction.

Better educated students will be able to meet the increased engineering demands of today's farmers, he said. The new equipment will also increase the faculty's research capabilities, Holmes said.

Brugger, the department construction representative, said the faculty must work to utilize the new resources to the students' best advantage.

"There is real potential, now that we have the facilities," Brugger said. "We have an exciting year ahead of us."
The newly completed $11.56 million agricultural Engineering Building opened for classes Monday.
MEDIA ADVISORY

Ohio State University will dedicate its new Agricultural Engineering Building, 590 Woody Hayes Drive, on May 15.

Activities begin at 2 p.m. in the sheltered equipment storage area on the east side of the $11.6 million building. Registration, preceding the event, will be held in the lobby.

The program will begin with a welcome by Frederick Hutchinson, vice president for agricultural administration and dean of the College of Agriculture.

The program will feature remarks by university President Edward Jennings; Hamilton Joel Teaford, member of the university Board of Trustees; Donald D. Glower, dean of the College of Engineering; Warren Roller, chairperson of the Department of Agricultural Engineering; Peter Fynn of Wooster, a graduate student and research associate; Michael Saunders of Bloomingdale, Ohio, an undergraduate student; alumnus William M. Davidson of the Farm and Power Equipment Retailers Association and the department's Industry Professional Advisory Group, and former faculty member William Johnson, president of the American Society of Agricultural Engineers and director of the Kansas State University Engineering Experiment Station.

The program will conclude at about 2:45 p.m.

From 3 to 5:30 p.m., faculty and students will conduct tours of the building. An ice-cream sundae social will be held in Room 136, a multipurpose laboratory on the west side of the building.

The tours will illustrate new and expanded thrusts in teaching, research and extension programs in agricultural engineering.

More information on the dedication ceremony is available from Joseph Gliem, assistant professor of agricultural engineering, at (614) 292-9325.

UNIVERSITY COMMUNICATIONS

SEE OTHER SIDE FOR STORY IDEAS
A SPECIAL NOTE

Tours of the Agricultural Engineering Building and demonstrations of research projects can be arranged prior to the dedication by contacting Robert Holmes, professor of agricultural engineering, at (614) 292-6798. A few of the projects that may be of interest are:

- **Nursery Container Handling Vehicle.** To improve efficiency in the nursery industry, Ohio State agricultural engineers have designed a mechanized transport vehicle for loading and unloading potted or polybagged plants. The tiered vehicle is equipped with movable racks and rollers that allow plants to be loaded at the rate of one per second. The vehicle takes less than 1 minute to load, compared to 15 minutes with current manual procedures.

- **Tomato Sorter.** An automated machine has been designed by agricultural engineers to sort tomatoes using vibration technology. Tomatoes proceed down a conveyor belt to a station where two vibrating metal shafts detect which tomatoes are ripe. The vibrating shafts are able to determine the softness of the tomato. Those that are too hard, the ones that aren't ripe, are ejected from the machine.

- **Soil Compaction Instrumentation.** Agricultural engineers are developing an instrument to measure soil compaction, a problem plaguing many farmers in Ohio and in other states and nations. The engineers' concept is to blow air through soil samples -- the more air that gets through the soil, the less compacted it is. Microprocessor-based flow meters record the amount of air traveling through the soil.

- **Waste Utilization.** Scientists have engineered a treatment system to detoxify animal processing waste water and create two usable byproducts. The waste is pumped through a bioreactor where bacteria "eat" 70 percent of the contaminants and produce methane gas and a single cell protein. A personal computer monitors the operation and collects treatment data. A local meat processor has built a pilot processing plant based on this technology.

More information on the Agricultural Engineering Building, faculty research projects and their applications, is available from Holmes.
AGRICULTURAL ENGINEERING BUILDING

Location: 590 Woody Hayes Drive, Columbus, Ohio 43210.

Architect: Firestone Jaros Mullin Inc. of Worthington.

General contractor: Peterson Construction Co. of Wapakoneta.

Cost of building, fixtures, major equipment: $11.6 million.

Space: 92,500 square feet spread across two floors, plus an 8,000 square-foot machinery courtyard.


The Agricultural Engineering Building will provide expanded research, teaching and extension capabilities. These efforts should result in improvements in farming and other techniques, and, in turn, boost Ohio's agricultural economy, says Robert G. Holmes, professor of agricultural engineering.

The new facilities will enable engineers to perform research into more productive harvesting of crops, better drainage of soils, development of water supplies, and new and more efficient methods of processing food, he says.

Studies are being conducted on such topics as Scioto River Valley ground water quality; mechanized seedling loaders, vegetable sorters; and instrumentation to measure soil compaction. Engineers are also researching animal waste disposal, improved pesticide application systems, development of a corn cob burner as a heating device, and greenhouse energy conservation.

Classes in the new facility began in January after 18 months of construction. From 1925 to 1986, the department was in Ives Hall, which was constructed as two buildings, a horse barn in 1907 and an implement barn in 1912, at Neil and Woodruff avenues. The structures were connected and remodeled in 1925 to create 35,442 square feet of space.

In contrast, the new Agricultural Engineering Building has 92,500 square feet. It also has power capabilities that Ives lacked. Inadequate research and storage facilities and power systems severely limited research in Ives, says Holmes.

The new facility contains new equipment for data acquisition, process control, computer-assisted design and other computer-related needs. The ground floor contains teaching and research laboratories for such areas as chemical analysis, farm power and machinery, food equipment engineering, and metals, masonry and woodworking. There are laboratories for seed cleaning and soils research, structures and environment tests, soil and water biometeorology, and a waste pilot plant.

The second floor features office space for faculty, staff and graduate students. The lobby houses the international Virgil Overholt Agricultural Drainage Hall of Fame. Outside is an 8,000-square-foot machine courtyard for temporary storage of large farm equipment and for outdoor laboratory exercises.
From stable to top drawer
OSU's ag engineers get world-class facility
By Tim White
Dispatch Agriculture Reporter

Frederick W. Ives knew Ohio State University needed new facilities for his agricultural engineering students. But in his wildest dreams the former department chairman could not have imagined the university spending $11.6 million dollars on a building just for agricultural engineering. After all, in 1916 Ives was teaching farm power to 143 students in a horse stable, and his annual salary was $1,000.

The agricultural engineering structure that Ives and a long string of OSU faculty and students longed for was dedicated on Friday. The state-of-the-art facility offers 92,500 square feet of classroom and laboratory space — enough to accommodate 2,000 students and 45 faculty members. The new building is check-full of $2.5 million worth of the latest electronic equipment for chemical analysis, calibration, measurement and computer-assisted design.

"IT'S A GEM," said Warren Roller, chairman of the agricultural engineering department. "It's the best in the country and maybe the very best in the world."

Roller said the University of Kentucky has twice sent architects to see the facility. "They want their building to end up like this one," he said.

The equipment includes $400,000 worth of Hewlett-Packard computers. There are walk-in chambers where the environment is completely regulated, a machine shop that houses a fleet of cut-away Kubota tractors and two acres of covered storage space. There is a deep pit to measure soil compaction and a cement-sided stream to test water flows.

It's a far cry from the $25,000 capital improvements expenditure which Ives authorized when he became chairman of agricultural engineering in 1920. At the time the department was scattered around the campus. Offices were in Townsend Hall with the department of agronomy. Drafting courses were held in the home economics building, Campbell Hall. Home economics Professor Edna Noble White warned the unruly engineers not to spill their ink on the floors of her building.

HOWEVER, THE end of World War I brought with it a shortage of labor and work animals. Farmers were turning to tractors. By 1920 annual production of the new gasoline-powered work horses in the United States had grown to 203,000 units. Students were eager to learn about the new technology. The department's enrollment had grown to 557.

Extension engineers taught more than 100 schools of tractors to farmers around the state.

With the tractor as the highlight, department activities focused on farm machinery, farm power, farm structures and drainage. At his wife's urging, Ives pushed through the addition of domestic engineering, which focused on farm water systems, lighting and labor saving appliances — especially washing and ironing machines.

Returning from an agricultural engineering meeting in 1924, Ives was killed in a train accident in Chicago. He never saw the engineering building that was named in his honor the following year. The university built Ives Hall by joining the horse stable and the look-alike carriage building next to it.

"AT THE time it was the envy of other universities," said Robert G. Holmes, professor of agricultural engineering. However, by the time Holmes enrolled in agricultural engineering at OSU in 1936, Ives Hall was less than satisfactory. The old stable offered little laboratory space. Doorways and ceilings weren't large enough for modern farm equipment. The building had few outlets for electrical or steam power. Besides, it had become infested with cockroaches. A raccoon had set up residence in the basement.

"When the lights went out at night very few people hung around to do extra work," Holmes said. His adviser urged him to stick with Ohio State through his graduate years because within five years the college was due to build a new facility.

Twenty-one years later OSU's new Agricultural Engineering Building at 590 Woody Hayes Dr. is filled with students and equipment. Since January the building has held classes for degree majors in agricultural mechanics, offered by the College of Agriculture, and agricultural engineering, a program funded by the school of agriculture and administered by the Engineering College. Many students come from other agriculture college fields, like agricultural education, which require coursework in mechanics or engineering.

"THE BUILDING was designed and built to give us the maximum amount of flexibility," said Hiram Halsey, who was chairman of the capital improvements committee that planned the building. The committee said what department wanted the building to provide in 1976. Diverse space requirements led the group to recommend huge laboratories so research projects and student exercises could be carried on at the same time. As space requirements change, the laboratories can be rearranged.

No longer is the tractor the center of attention for the department. Traditionally, about half the graduates go to work for farm equipment companies, but Holmes said the stagnant equipment industry has cut those numbers.

"Now the hot field is food systems," he said. "There are excellent opportunities to mechanize food processing. We teach students to heat, cool, grind and mix foods. They learn to design automatic control systems."

A WASTE utilization project at the school enables scientists to detoxify waste water from animal processing. A bioreactor is the key to the system in which bacteria consume 70 percent of the contaminants. Meth-
The new building is chock-full of $2.5 million worth of the latest electronic equipment for chemical analysis, calibration, measurement and computer-assisted design.

Gas can be collected from the reaction.

In the mechanization laboratory research ranges from a nursery container-handling vehicle to an automated belt that sorts ripe tomatoes from hard tomatoes or separates potatoes from rocks.

Researchers are blowing air through soil samples to measure soil compaction. Micro-processors record the flow of air through the soil. "How can you determine how much damage heavy machinery is doing to the soil if you don't have a mechanism to measure that compaction?" asked Holmes.

The new facility is expected to help lure top-notch professors to Ohio's program. "It's been a big boost for the morale of the faculty," said Todd Long Jr. works on a tractor transmission.
Joe Gliem, professor of agricultural mechanics, "Now we need to be held accountable for making the most of it." Already the facility has helped turn around a steady decline in the number of students majoring in agricultural engineering and mechanics.

"The payback on this facility to the state of Ohio will come from better trained students and from new designs for better equipment," Holmes said.

"We're the ones who can figure ways to make American farmers more efficient — just as the Japanese engineers have figured out ways to produce automobiles more efficiently," said Roller. "You can increase efficiency by increasing the number of units. That's happened to agriculture to such an extent that we now have a surplus on the market. Our goal is to improve efficiency without adding to the number of units."

Roller said that could be done by applying and managing inputs better. Holmes said engineers are looking for new crops and production methods.

"Maybe it's a crop that can be used for adhesives or plastics or 2-by-4s," Holmes said. "If just one of those pans out, we would quickly retire the cost of this building. The benefits will be passed to Ohioans who use the products as well as farmers, agribusinesses and all those who employ OSU agricultural engineering students."
Obscure hall recognizes drainage

The first thing visitors to the new Agricultural Engineering Building encounter is the Overholt Drainage Hall of Fame.

Ohio State’s agricultural engineering department has been internationally known for its drainage research ever since Virgil Overholt became the state’s first extension agricultural engineer in 1914. In 42 years of service, Overholt published information on everything from road grading to knot tying. But his specialty was drainage.

THE OVERHOLT Drainage Hall of Fame was founded in 1979. It has inducted nine researchers for their work in drainage.

The most recent was Jans Wesseling, head of the Institute for Land and Water Management in the Netherlands. Wesseling lead the research that enabled the Dutch to reclaim sea-covered coastal areas.

The reclaimed fields, which are called polder lands, were systematically drained. The drainage allowed rain water to leach through the soil and carry salt left from the ocean back out to sea. Farmers now raise a variety of crops ranging from wheat to potatoes to tulips on the reclaimed land.

The hall of fame moved beyond the tight circle of engineering recognition last year when The Los Angeles Times added it to their list of obscure halls of fame. Rumor has it the institution also made the media as a Hollywood Squares true or false question.

BUT FOR the state’s farmers, drainage is not something to take lightly. There’s a saying that drainage is all that stands between the farmers of northwestern Ohio and the Great Black Swamp. Some of the state’s richest land was not inhabitable, much less farmable, until the middle of the 19th century when drainage laws were written to encourage farmers to cooperate in building outlet ditches.

According to agricultural engineer Byron Nolte, Ohio is probably as intensively drained as any state in the country. “The U.S. Soil Conservation Service reports 60 percent of Ohio’s cropland is on poorly drained soil,” said Nolte.

A recent survey showed there are almost 5,000 miles of regularly maintained open drainage ditches in the state. Main lines of drainage tiles run into the ditches. Branch lines of tiles or laterals feed the larger main lines.

EVEN BEFORE the civil war tiles were made from wood in the state. Ohio-manufactured clay tiles from the Civil War era are on display at the hall of fame.

In 1893 the first wheel trencher was developed in Ohio to help make trench-digging easier and faster. Since then, Ohioans have developed chain trenchers and drainage plows for ditch digging.

From 1950 until his retirement in 1984, OSU researcher Glenn Swabb gathered data showing how drainage improved crop production. Nolte said Swabb’s work is the world’s most thorough examination of the impact of drainage on crops.

The first plastic tubing was manufactured and laid in Ohio in 1967. Plastic tubing is now used in 95 percent of the lateral tile lines. The nation’s largest manufacturers of plastic tubing are located in the state. Hancor Corp. is in Findlay, Ohio, and Advanced Drainage Systems is in Columbus.

In the mid-1960s Jim Fouss, with the U.S. Department of Agriculture’s Agricultural Research Service, was assigned to OSU to investigate the use of lasers in drainage. From his work the Dayton-based Laser Plane Co. was established to lay drainage tile with laser-beam precision. It was one of the first practical applications of lasers.

Nolte said drainage is still the dominant problem for farmers in Ohio. New research at the agricultural engineering department centers on chemicals and fertilizers that leach into drainage tiles and are carried into streams.