The Maurice J. Zucrow Laboratories & the Lilly Endowment
PURDUE’S DISCOVERY PARK AND DRUG DEVELOPMENT

In 2014, the Lilly Endowment invested $40 million to advance Purdue initiatives that will promote economic development throughout Indiana. The Lilly Endowment invested in the Wilmeth Active Learning Center, the Flex Lab, the Bechtel Innovation Design Center, the expansion of the Maurice J. Zucrow Laboratories, and faculty development that helped transform the Purdue College of Technology into the Purdue Polytechnic Institute.

Although the Zucrow Labs’ expansion will not be completed until February 2017, it has been having a significant impact upon Purdue ever since the Lilly Endowment’s February 2014 announcement. Zucrow’s revenue grew from $8 million in FY2014 to $10.5 million in FY2015 (File 1), leading the world in cutting-edge combustion and propulsion research.

Once the expansion is complete, the Zucrow Laboratories’ High-Pressure Lab will have a modern, climate-controlled 2,000-square-foot laser lab that runs adjacent to five new test cells for optimal inclusion of laser diagnostic measurements during the experiments. The expansion will also roughly double the space for offices and control rooms and add a 12-seat conference room. This expansion has played a central role in new agreements between Purdue University and several major corporations. One such agreement is an April 2016 agreement announced by Purdue and Rolls-Royce of a joint $33 million jet-engine research and development program to create next-generation aircraft propulsion systems. The Rolls-Royce funding will support research and technology development in thermal management for advanced propulsion systems, compressor and turbine technology, and analytical methods.

Also since the expansion, Rolls-Royce designated Purdue to be a University Technology Partner - one of only two universities in the nation to earn this designation. The Purdue UTP will initially encompass two research centers in the areas of advanced thermal management systems and advanced compressor systems, expanding beyond Purdue’s current University Technology Center (UTC) designation.

In addition to these two exciting announcements, Rolls-Royce is currently building a 50,000-square-foot jet-engine research facility near Zucrow Labs expected to be completed by Spring 2017. With this building, Rolls-Royce will design, test and develop jet engine components, collaborate with Purdue faculty on jet engine development, and recruit Purdue graduates as future talent.

The Zucrow High Pressure Lab expansion has also strengthened Purdue’s ties with GE. GE engineers have collaborated frequently with Purdue faculty as they designed the lab expansion, since Zucrow was central to GE’s decision to develop a $100 million LEAP engine assembly factory in neighboring Lafayette, Indiana. This underscores Forbes’ July 2015 ranking of Lafayette as second on its list of best small communities for conducting business.

An additional recent award related to the High-Pressure Lab includes a $2.1 million from the Air Force Space and Missile Command to help develop design tools that can be used by the United States to predict and prevent combustion instability in its advanced rocket engines.
Zucrow’s expansion is only one of the many ways the Lilly Endowment’s historic grant is advancing innovation across campus. The Lilly Endowment’s support has also helped:

- Fund the faculty development needed to transform the Purdue College of Technology into a visionary new educational paradigm, now known as the Purdue Polytechnic Institute. The Purdue Polytechnic Institute incorporates innovative learning environments, integrates humanities with technical studies in a learn-by-doing atmosphere, and offers new options for chosen majors and earning degrees.

- The Thomas S. and Harvey D. Wilmeth Active Learning Center (WALC) is a seminal higher education facility that fuses classrooms, libraries and study-and-collaboration areas into one adaptable space as no library ever has before. All of the WALC classrooms, including the large, tiered classroom will be specifically designed for team-based collaboration and hands-on learning.

- The Bechtel Innovation Design Center (BIDC) is a 17,300-square-foot facility initiated by the Purdue Engineering Student Council (PESC). The BIDC is dedicated to providing Purdue engineering and technology students with the space, equipment and resources they need to develop hands-on projects. The students’ work will begin on the second floor, with design, using both low- and high-tech tools; the first floor will be manufacturing for wood and light metal. The basement will include: an electronics lab, an assembly area, a storage area, a teaming space, and an isolated testing area to ensure tests can be conducted safely.

- The Flex Lab is a 64,000-square-foot, multidisciplinary research facility being constructed by the College of Engineering in Discovery Park. Once completed, the four-story facility (basement plus three levels above grade) levels irrelevant will be populated by teams of faculty from a range of colleges working on cutting-edge topics. The building is being designed to meet the research needs of various research “themes,” ensuring it will be flexible enough to meet a range of needs. An example is the Environmental and Ecological Engineering (EEE) faculty, who will have research space within the Flex Lab due to the multidisciplinary nature of their work. EEE faculty members have academic “homes” from numerous schools of Engineering.

The Lilly Endowment’s generous $40 million grant was dedicated specifically toward projects and programs that would advance Indiana’s economy. The expansion of Zucrow’s High Performance Lab has significantly increased opportunities for corporate and federal collaboration, and the new Purdue Polytechnic Institute is introducing an entirely new approach to student-centered STEM education. Purdue University has a distinguished record of investing in initiatives and infrastructure that advances innovation, community development and talent. Purdue’s commitment enhances educational opportunities for our students, future job opportunities for our graduates (File 3) and economic prosperity regionally and globally.