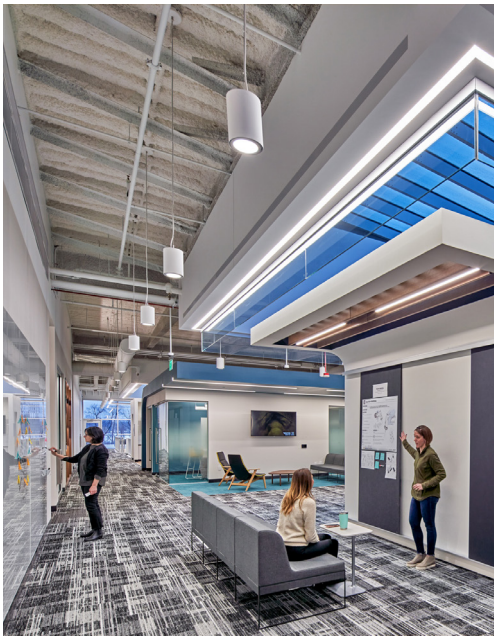
SPECIALIZED ENGINEERING







TowerPinkster worked alongside design partner HOK to create 485,000 square foot research and development facility in Portage, Michigan. This facility features research and development space, lab and testing areas, and customer engagement spaces such as an operating room showroom.

To encompass all of the client needs, TowerPinkster and HOK went through the extensive process of meeting with multiple user groups. Before meeting with these teams, TowerPinkster sat down with leaders to establish five core values for the project – flexible, connected, energetic, engaging, and productive. These five values were created to help address the deficiencies of having staff in multiple locations, lacking adequate meeting space, and not having areas for different teams to collaborate. These core values fueled the design process and gave inspiration creating the space for innovation, visibility, growth, and collaboration. Design ideas evolved throughout these meetings to create a space that was comfortable and functional for over 1300 employees.

The design process goal was to break down a massive space into different categories and capture each element. While meeting with the user groups, teams focused on the end goals of each space. Once the design elements were recognized, they were leveraged through Revit.

For effective research, this organization has multiple labs throughout the building. The TowerPinkster team designed the lab spaces with viewing windows for everyone to feel connected to other teams. The viewing windows also allow them to bring in clients to watch products being made.

TowerPinkster's team designed the labs with different types of electrical outlets because of their international presence, special rooms, and proper ventilation. Mechanical engineers focused on developing the most energy-efficient solution to heat and cool the facility. Because the labs use a significant amount of energy, the engineers designed a heat recovery chiller plant, including chiller plant optimization. The system captures the waste heat generated by autoclaves in the labs and moves it to other areas of the building where it can be used for building heat or snowmelt. The large battery test room also features energy recovery to capture heat from discharging batteries to allow that heat to preheat other areas of the building, reducing energy costs.

In total, over 28 miles of piping was used in the plumbing systems, and 14.5 miles of piping was used for the HVAC piping systems. The building's snowmelt covers more than an acre and ensures that water and salt will not be tracked into the building lobbies.

On the electrical side, there are over 15 miles of underground wiring, 440 miles of building wire, 165 miles of communication wire, and 5,600 light fixtures. Because the labs test a lot of equipment on European style controls, they required specialized electrical areas. Additionally, a unique fire system was installed to help protect lab equipment and supplies.



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