



# Project Spotlight: Intel Ocotillo Campus

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Photo by Jason Wise

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Intel's slogan is more than just corporate branding—it also perfectly defines their approach to the LEED certification of their Ocotillo Semiconductor Manufacturing Campus, which earned LEED Silver as an existing building in 2011.

The Ocotillo Campus is one of the first existing and operating campuses of semiconductor manufacturing in the world to receive certification under LEED for Existing Buildings: Operations & Maintenance, an accomplishment due to the size and complexity of operational facilities at this site. The campus, located on 682 acres with nearly four million square feet of conditioned space, consists of three wafer fabrication plants; two central utility plants that house chillers, boilers, waste, and wastewater treatment; three office buildings with cafés; two process waste buildings; one sort manufacturing building; and one emergency generator building. These buildings share integrated systems that are critical to semiconductor fabrication processes.

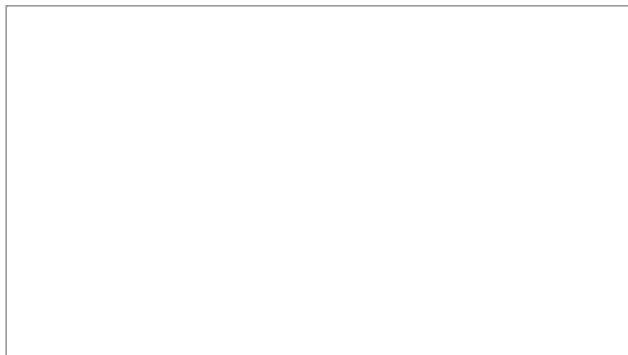
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What cutting-edge strategies or processes were implemented?

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One innovative strategy used on this project was the installation of an algae biofuel demonstration unit, in conjunction with Arizona State University (ASU), to capture boiler emissions of CO<sub>2</sub> to grow algae and create biofuel. Apart from striving to meet the green building requirements laid out in the LEED rating system, Intel engineers are constantly innovating with sustainability in mind. After determining that the CO<sub>2</sub> emissions produced by Intel's Fab were well-suited to grow algae, which can be used to create clean-burning biofuel, we worked with ASU to erect a small proof-of-concept model on the roof of the Ocotillo Fab.



**This model demonstrates the capture of boiler emissions, use of the emissions to grow algae, and conversion of those algae into biofuel.**

This kind of carbon recycling could reduce the overall carbon emissions of the Fab and, by creating a sustainable alternative fuel, displace the carbon emissions of burning fossil fuels from the Intel boilers. The next phase of this project will focus on measuring the amounts of carbon captured, identifying options for implementing the concept on a larger scale, and assessing how algae-based carbon recycling should be recognized under regulatory regimes. Intel and ASU plan to continue to make their research results publicly available under an open,

collaborative research model the team has established. This project is part of Intel's Sustainability in Action program, through which employees can secure funding to share Intel's expertise in environmental sustainability with communities around the world.



**This boiler is low NOx. In partnership with Arizona State University, Intel has installed an experimental algae biofuel demonstration unit to capture boiler emissions of carbon dioxide and create biofuel.**

Another innovative aspect of the Intel Ocotillo Campus project was actually showing that the LEED for Existing Buildings standard could be applied to the buildings on this large manufacturing campus. The Intel Ocotillo is a large campus that houses very complicated and regulated manufacturing processes. As a result, it was not an easy path to certification - but it was a transformative path for two reasons: first, it showed that it is possible to certify a large industrial facility, and second, it identified specific areas where the LEED program can be improved to facilitate certification for industrial facilities.

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