EVERGREEN ENGINEERING®, INC.
Engineering and Construction Services

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Photos available

Local Evergreen Engineering firm's project wins major award

CalPlant rice waste-to-MDF site named Engineering News-Record California Project of the Year

Eugene, Ore. — Evergreen Engineering®, Inc.., announces its longtime client, CalPlant LLC, was chosen as the 2021 Project of the Year by industry journal Engineering News-Record California.

The Eugene-based multidisciplinary engineering firm acted as Engineer of Record for the plant, which refines waste rice straw fibers and forms them into medium-density fiberboard for use in the construction and furniture industry.

According to an article in ENRCalifornia, the new product resulted from two decades of planning that culminated with the green manufacturing facility in Willows, Calif.

CalPlant now produces MDF in a sustainable practice by turning post-harvest rice straw waste, with no added formaldehyde, into Eureka MDF, a board that matches the performance of traditional wood and can be used to make furniture, cabinetry, doors and moldings.

Currently producing 600 truckloads of MDF annually, the $400 million project required decades of engineering work, financing guarantees, and four years of construction to build the manufacturing plant, which sits on 276 acres in an area that produces 20% of the country's rice. CalPlant sources its rice straw from within an average 25-mile radius, providing a local benefit in both jobs and a sustainable way of replenishing local fields.

Because of the renewable and abundant nature of the rice straw, not only is the product sustainable, it also removes waste straw from the rice fields that would otherwise need to be flooded in the winter, thus conserving water and reducing the methane emissions that rotting rice straw produces.

From the start, Evergreen assisted with product prototyping and testing at laboratories in the U.S. and Europe. Once the project was thoroughly vetted and funding raised, Evergreen provided

preliminary engineering for the new greenfield MDF plant continuing through detailed engineering packages issued for construction.

Industrial Projects Consulting acted as the construction manager on the plant, hiring all contractors and material suppliers to complete the project, while working hand-in-hand with the owners CalPlant LLC, German equipment supplier Siempelkamp, and Evergreen.

A major hitch in the development occurred when an FFA agreement on the height of the plant changed, compelling a 100-foot reduction in the height of the plant's main tower.

"It required a pretty significant redesign effort midway to reduce the height," said Larry Persinger, owner of Industrial Projects Consulting. "It was a dramatic redesign that required a pretty herculean effort by Siempelkamp, Evergreen, and CalPlant to make that all work."

Gordon Yutzy, Evergreen Engineering® president, said learning about the height changes was quite the surprise. For the fix, they created two shorter structures instead of one taller tower. Persinger says it had an impact on the construction schedule. "We were scrambling trying to keep the contractors on site busy and productive," he said. "It was a challenge for all parties."

The MDF plant features steel, some sourced locally and some in Europe. This necessitated intense coordination between Evergreen and Siempelkamp. Early on, Evergreen helped the owners understand the raw material needs and then provided structural steel, electrical, and mechanical system engineering outside of the main process equipment after Siempelkamp joined the equation.

"We have done refiner systems a number of times, and it is virtually the same equipment, but the innards are different," Yutzy said. "With a new process there is lots of testing."

Persinger said that Evergreen also was responsible for ensuring that all the Siempelkamp drawings met U.S. codes and matched up with on-site systems. "The whole design coordination was ongoing and sometimes a difficult part of the project," he says. "We led the parade on the coordination, but getting the coordination done was a big deal."

At full capacity, the plant will produce more than 150 million square feet of MDF annually and use 280,000 tons of rice straw.

The CalPlant project was also selected as The Daily Journal of Commerce's winner for Top Project 2021 in the Manufacturing category. The DJC Top Projects awards competition recognizes the most outstanding projects completed last year in the Pacific Northwest.

Established in 1985, Evergreen Engineering®, Inc., is a multi-discipline, full-service consulting engineering firm serving the power generation, wood products, pulp & paper, chemical, and resin industries. With offices in Eugene, Oregon, Atlanta, Georgia, and Everett, Washington, Evergreen serves clients throughout North America and around the world.

Evergreen is comprised of mechanical, civil/structural, electrical/controls, environmental, and chemical engineers, designers, and drafters. The firm can deploy all project phases from planning through construction, including scheduling, feasibility studies, preliminary engineering, capital estimates, detail engineering, process design, environmental permitting, purchasing, commissioning and start-up assistance, and project management.

Please contact Kathleen Strecker at kstrecker@eeeug.com for high-resolution photos.