

TECHNICAL DESIGN & ENGINEERING FOR SOLID BIOMASS HANDLING PROJECT

ABOUT THE CLIENT

Our client is a Fortune 500 global leader in bio-technology research and enzyme production. Since 2012, we have provided multi-discipline engineering and project management to support their mission to create sustainable products and processes that help businesses reduce their environmental impact, conserve resources, and optimize efficiency.



SERVICES

Controls & Automation
Engineering
Project Management
Construction Management

HIGHLIGHTS

- Developed novel conceptual design for automated process waste system that replaced manual system
- Improved worker efficiencies and safety
- Developed BIM and 3D CAD model of design as visual for proposed changes prior to implementation

PROBLEM TO SOLVE

Our client contracted EAD to design and install an automated process waste system that could replace their existing manual system. Our client's bio-fermentation facility's enzyme production process involved growing bacteria and then filtering out the bacterial body waste through clay packed filters. Facility staff were required to manually add lime to the mixture to sterilize and denature the bacteria. Since lime is a respiratory irritant and the enzymes are allergen producing, facility personnel were required to wear respirators throughout the facility. EAD employed our process engineering expertise to create a conceptual design for a new, more efficient, and safer production process that automated the bacteria denaturing process.

APPROACH & SOLUTION

EAD was able to take the design all the way from concept to project completion. Our solution involved using heat, rather than lime, as the denaturing agent in the enzyme production process. Our design called for the addition of steam-contact paddle mixers to ensure that the microbial biomass could be completely removed from the waste stream. The new design eliminated the need for facility personnel to manually scoop lime, allowing them to focus on other production tasks. We also isolated and enclosed the production equipment within a smaller physical space so that plant personnel had more room to work safely without the need to wear a respirator.

So that our client could better visualize our proposed design, our in-house design team developed a model of our client's existing building in BIM and 3D CAD. Within this model we added our proposed modifications, providing details on everything from the process equipment, piping, HVAC units, and electrical equipment to the cable tray and new interior structures.

RESULT & BENEFIT

By project close, our client not only had a complete virtual model of their redesigned building for their future use, but a safer and more cost efficient production process. By introducing a novel design concept, automating parts of their production process, and improving worker safety, our client was able to see an immediate return on investment in terms of improved worker efficiency and production output.

