

# HIGHLAND WRF

## COVERED SLUDGE STORAGE

### CASE STUDY

 WASTE RECYCLING  
APPLICATIONS



**KEEPING THINGS DRY IS IMPORTANT** in a lot of storage situations, but it's hard to imagine it being more important than when you are storing biosolid sludge. Bill Zimmer is the plant supervisor for the city of Highland, IL, which recently completed an \$11.5 million upgrade to its sludge processing operation. One component of that was a new storage building to keep the weather off the biosolids.

The building Legacy delivered was 20,400 square feet and covered the sand beds where they dry the biosolids. The extra capacity gave the city of Highland the ability to handle the materials more effectively. Said Zimmer, "now we can save anywhere from six months to a year depending on how hard we push our digester and our press." With the old building, they had to transfer the biosolids to local farmers three or four times a year.

#### LOCATION

Highland, IL

#### MARKET SECTOR

Waste

#### APPLICATION

Covered  
Sludge Storage

#### SIZE

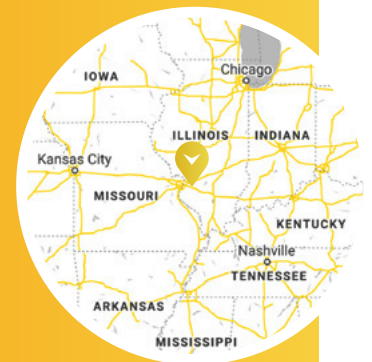
85 ft x 240 ft (20,400 sq ft)

#### SPECIAL FEATURES

Pavilion-style structure,  
ExxoTec™ Elite PVC fabric  
cladding, 36-in extended eaves  
to keep interior dry

#### INSTALLATION

Legacy in-house crews





That extra capacity also made the building more cost effective, explains Adrienne Eilers, P.E., project engineer from Crawford, Murphy & Tilly. She oversaw the city's upgrade. During the early bid process, the project came in over budget, but she said, "Legacy had come up with cost savings for us simply by being able to change our occupancy load, allowing us to reduce cost and move the project forward."

With most of the local farmers going to no till farming, transferring biosolids three or four times a year created scheduling problems for Zimmer and his team. Their materials were Class 5 sludge, and the regulations required those biosolids to be incorporated into the soil. Trouble was, farmers were only turning the soil twice a year, in spring and fall. With the extra drying capacity, Zimmer's operation better matches the farmers' schedules. "This Legacy building has been a very useful upgrade," he said.

Faster drying also allows Highland to stack the biosolids higher and make better use of space.

Legacy customizes every building it designs, fabricates and installs. Our designs include eave extensions where the roof meets the walls. In Highlands case, they specified 3 foot eave extensions on the open-air building, and Zimmer says those eaves have also helped with the drying. "When you have rain and melting snow, it doesn't blow the water into the covered area," said Zimmer. With the old building, a traditional structure with steel walls and a tin roof,

**"When you have rain and melting snow, it doesn't blow the water into the covered area."**

the roof ended right at the support columns and provided less protection from the weather.

Those longer eaves, said Eilers, also helped them do the value engineering analysis of the project. Initially they considered having fabric wall panels on the structure to keep the materials dry. With the extended eaves, they got the protection they wanted and saved money. The removed wall panels and roof vents framed near the peak also encourages additional airflow, further aiding the process of drying the biosolids and reducing the caustic factors that lead to steel maintenance.

The city of Highland had some experience with fabric buildings in other applications such as salt storage. Zimmer needed a building that would last at least 20 years. The Legacy structure uses the proprietary ExxoTec™ fabric, a PVC-based industrial fabric that has a 25-year prorated warranty. The solid steel frames were hot-dipped galvanized to prevent corrosion. Zimmer is confident this investment will last a long time.