CASE STUDY



## CARBON FIBER BRICK COLUMN STRENGTHENING

OWENS-ILLINOIS GLASS FACTORY, ZANESVILLE OHIO





## **Driven by Transformation**

**"IT CAN BE DONE"** 

"It can be done" was the personal motto of Owens-Illinois founder Michael J Owens. More than a century later, they're carrying on his legacy by leveraging creativity and technology to bring forth leading innovations, transforming the glassmaking industry.

This historical glass plant supplies bottles for Jack Daniels Distillery, Jim Beam, and Diageo (a company that owns several brands of alcoholic products, including Guinness and Hennessy) and has operated in the area since 1929.

Owens-Illinois reached out SRS for an innovative solution to repair a cracked brick support column inside their historical glass making factory in Zanesville, Ohio. The columns support a furnace that holds more than 300 tons of molten glass when operating at full capacity. In the true fashion of their founder, they recognized carbon fiber's innovative potential to strengthen brick columns.



## CARBON FIBER STRENGTHENING SYSTEMS



In order to provide a clean and effective installation, after the surface of the brick was prepped for the CFRP installation, any voids or uneven areas had to be filled and leveled out with a repair mortar.

## Innovative engineered solutions, delivered on time.

After meeting with the Engineers from Owens-Illinois to understand the requirements of the column, SRS provided a repair plan that included the full encapsulation of the column using the SRS-600 Unidirectional carbon fiber.

n order to meet the schedule requirements on the project, the filling process for the Tank had to begin at the end of the week. Both SRS and the Owens-Illinois personnel agreed that the CFRP wrap needed to be installed and cured prior to increasing the loads on the columns. SRS was initially contacted on a Wednesday and had an onsite meeting that evening with the Owens-Illinois Engineers along with the general contractor, Lilja Corp to look at the column.

NEO Waterproofing, a local SRS contractor, was on site the following day, Thursday, along with all of the materials to perform the structural strengthening of the column. In order to meet the schedule, the Lilja Corp Crews began the surface preparation of the column while NEO Waterproofing's Crew was going through the required Safety Orientation which allowed them to work on the project. Crews were slated to begin loading the tank at the end of the day on Friday so it was critical that this installation was completed on Thursday.

The bond strength of confining repairs is not critical to the system's performance since it is fully wrapped. The wraps were lapped appropriately to achieve a bond strength equal to or greater than the tensile strength of the material essentially creating a continuous wrap.

These products have been tested to verify the Glass Transition Temperature (Tg) to meet the requirements of AC125 which far exceeds the environmental conditions in this facility. They have also been tested to meet a class A fire rating.

