

A CASE HISTORY

Project: Plant capacity expansion —
Techneglas Television Picture Tube Manufacturing,
Columbus, Ohio

General Contractor: J&D Hydro-Tech, Reynoldsburg, Ohio
Sub-Contractor: Geo-Tech Services, Cleveland, Ohio

Job Description:

Techneglas was looking to increase their interior plant capacity adjacent to an existing Leer oven. The oven is used in the manufacturing and is an integral part of the production process.

Prior to selecting a viable method of construction, two major areas of concern had to be addressed. First, excavation alongside the existing oven was to take place down to a depth of 12 feet, which introduced the potential for undermining to occur. Second, production downtime was to be kept at a minimum. Due to these conditions, the Chance SOIL SCREW[®] Retention Wall System was recommended, in lieu of other traditional soil nail applications.

Design:

The general contractor, with an engineer on staff, coordinated their design with a member of the Chance Company applications engineering staff.

Key factors affecting the design:

- The Leer oven had a load capacity of 4,000 lb. per foot,
- Production downtime had to be kept at a minimum

To meet the specified criteria for the soil nailing job, the SOIL SCREW anchor selected was 14 feet long with 8-inch diameter helices and a threaded stud at the termination. A 4 x 5 ft. grid was determined for use in the excavated area. A total of 42 SOIL SCREW anchors



were installed. The excavation and installation process was performed in three equal lifts of 4 ft. each, with each row consisting of 14 anchors.

Construction equipment consisted of a Bobcat X331 mini excavator with a 5,000 ft.-lb. torque head. A two man crew installed the SOIL SCREW anchors

Construction:

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on the 4-foot excavated benches. After the anchor installation, wire

mesh was installed, along with bearing plates, and a shotcrete covering

was applied. The anchors were installed at a torque reading of 6,000 ft.-lb. which converts to a 60 kip ultimate capacity. Applying a 2.0 safety factor yielded a 30 kip working load.

Summary:

Overall, by utilizing the SOIL SCREW™ Retention Wall System, the contractor was able to provide Techneglas with a quality product while decreasing the downtime and production losses by 66% over other conventional methods used in other sections of the plant expansion.

