Unilever Ice Cream Freezer Warehouse

Memphis, TN

To support a freezer warehouse as an alternative to more costly drilled shafts, Menard designed an economical solution using Controlled Modulus Columns™ (CMCs) that isolated the building from the ground and eliminated a layer of structural concrete.

Project Summary

This project involved the construction of a new 16,500 square foot cold storage building at an ice cream plant in Memphis, TN. The originally conceived foundation under the rack-supported insulated building involved:

1) a concrete floor slab under the rack legs, over
2) a layer of rigid insulation, over
3) a heavy reinforced concrete mat supported on drilled shafts. Under the mat, a heating system was to be installed to keep the ground below the building from freezing and heaving under the constant -20°F

Ground Conditions

The soils on the site consisted of alluvial deposits of clay and silt over sand that served as a bearing layer between 40 and 70 feet deep. Some additional soil information was obtained using the results of cone penetration tests taken prior to field mobilization to determine the most refined bearing profile.

Ground Improvement Solution

Since CMC designs use a highly compacted mat of dense granular fill (Load Transfer Platform – LTP) to support large flat areas, this concept proved highly effective to replace the structural concrete mat under the insulation. The heated stone layer, the insulation board and a concrete floor mat were placed above the LTP to support the racking. The economy of the CMC system, and the heat break afforded by the LTP, made both a better performing foundation and an improved design regarding long-term thermal isolation of the ground.

Owner: *Unilever Corporation*
General Contractor: *Whiting Turner Construction*
Owner Architect/Engineer: *Raasch Associates, Inc.*
Design-Build Ground Improvement Contractor: *Menard*

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