



Agile Cold Storage

UNITED STATES



Owner
TI Cold

Engineer
Geotechnical Engineer

General contractor
TI Cold

Dates of work
January 2025 February 2025

Main figures

Controlled Modulus Columns
1,666 EA.



Description

Agile Cold Storage, an Atlanta, GA-based company, was seeking to expand its national footprint by developing a new, state of the art multi temperature warehouse in Buffalo, New York. The planned 132,865 square foot facility is being constructed directly across the street from Rosina Food Products, reinforcing the strong partnership between the two organizations. This project marks the company's third cold storage facility developed with TI Cold and reflects Agile Cold Storage's ongoing commitment to innovation and operational excellence. The facility plans to include a low ammonia cooling system that uses natural refrigerants, contributing to environmentally sustainable operational practices.

Ground conditions

The site soils consist of 2-4 ft of existing fill over 25-30 ft of silt, sand, and clayey silt. This layer is underlain by a hard weathered shale layer that would serve as the bearing layer for CMCs to be embedded. The water table was not a factor on this site. Due to the loose and compressible nature of the soils at the site – excessive settlement was predicted within the silt and sand layers underlying the site.



Solution

Menard USA was contracted to perform the necessary ground improvement for the new facility, with Controlled Modulus Column (CMC)® rigid inclusions selected as the most effective solution. Aggregate piers were initially considered; however, the method deemed prohibitive due to the large number of aggregate piers needed to prevent overloading or bulging of the elements. CMCs offered a more economical and timesaving solution for supporting the building's foundations.

Menard's design planned for 1,666 CMCs installed at an average depth of 32 feet and a maximum depth of 40 feet. Each footing and strip footing received CMC support, along with slab-on-grade CMC support engineered to carry both floor loads and warehouse pallet racks - improving long-term performance and reducing long-term repair costs.

Winter conditions in Buffalo created a substantial challenge. The frost hardened the upper five feet of soil, increasing resistance, accelerating tool wear, and causing breakage of augers and Kelly bars. Working together, Menard's field and design teams recalibrated the termination criteria using performance-based metrics rather than frost-inflated refusal. This preserved CMC capacity and settlement control under normal (non-frozen) conditions and kept installation on schedule.

Despite the harsh weather and subsurface challenges, Menard successfully installed all 1,666 CMCs needed to support the new warehouse for TI Cold in Buffalo, NY. Through innovative problem-solving, the project finished ahead of schedule and showcases Menard's commitment to solving complex geotechnical challenges with high-quality, dependable solutions.