

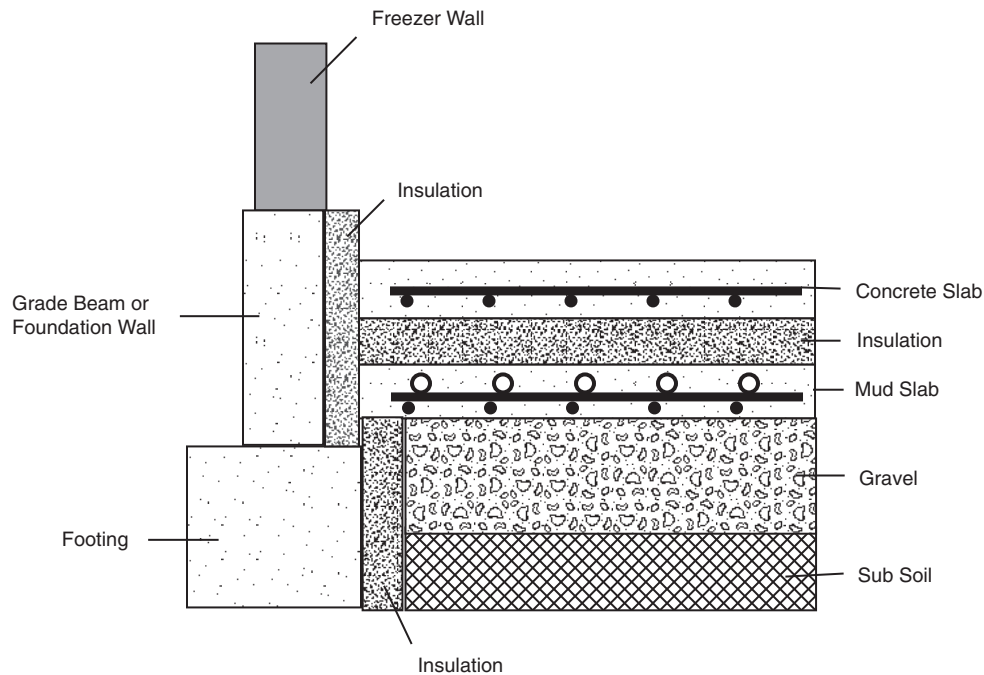
This particular project consisted of 17,800 sq. ft. of slab on grade heating under the freezer area to prevent the ground beneath from freezing. The hydronic system was installed to replace the existing forced air / weeping tile system.

Associated Grocers and their parent company Overwaita Foods required a dramatic solution to the failure of their existing underground forced air subsoil frost protection system. After only a couple of years of operation, the underground forced air heating system had failed, due to the condensate which was forming on the walls of the ductwork. This condensate moisture then froze, which in turn blocked the warm air flow. As the indoor temperatures of the building are below -20°C (-4°F), within a short period of the system failure the frost had penetrated deep enough into the subsoil to begin the process of shifting or moving the footings and foundation of the building. Eventually the creeping cold and frost which was being conducted into the ground was found to be over 20 feet deep underneath the building roof support pillars! This in turn heaved and buckled the entire roof structure over 2 feet in some areas!



The solution for the owners was to completely shut down their freezer building, and to excavate as deep as possible to remove and replace the frozen soils. After compacting the subsoil and a new gravel base, a HeatLink[®] radiant hydronic slab heating was installed. The system is composed of 8 distribution manifolds totalling 40 pipe loops. Four floor sensors were installed with two on/off setpoint controllers. One controller was used for boiler staging & floor sensing, and the other for activating a low temperature alarm signal.

After over 4 years of operation, the system has been trouble free, with remarkably low energy consumption requirements. Taking into account the long term reliability of the components used, a HeatLink[®] subsoil frost protection system has proven to be tremendously successful.



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