



## **F.W. Sims completes central terminal building replacement at the LaGuardia Airport**

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Queens, NY F.W. Sims, a subsidiary of Electra USA, completed a project working on a central terminal building replacement at the LaGuardia Airport. The goal of this project was to complete renovating the airport, including a unified terminal system, spacious gate areas, architecture and modern amenities to deliver a 21st century experience for passengers. They designed, fabricated and installed an HDPE underground piping system connecting a newly-built central heating and refrigeration plant (CHRP) to a new cooling tower. The scope of the project is two 500-foot runs of 24-inch-high density polyethylene (HDPE) pipe to condense water supply and return and is 6-15 ft. deep.

Challenges included connecting the pipe by fusion welding and by flange connections and handling and installation of large sections of heavy piping, which posed challenges for field labor and other trades in collaborating on the project.

F.W. had to undergo extensive planning for determining the location of each type of connection in the system; all fusion welding was carried out above grade and lowered into the trench to connect it with the previous section by a flange-to-flange connection.

The project deployed McElroy MEGAMC 1236/900 fusion machine for fusing two sections of HDPE pipe by heat fusion, preparing and heating to a designated temperature of the two surfaces and fusing them together by applying for to each side and heating of the polyethylene pipe, which changes the molecular structure from a crystalline to an amorphous state. Fusion pressure was applied to mix the molecules from each side; once the joint cools, the molecules return to their crystalline state and the two sections of pipe become one homogeneous section.

Given that all renovation work was carried out while the terminals remained open, the project was designed to enable rapid installation and recovery to ensure that passengers and the general public were not impacted by the construction. Historically, between tide and storm surges in the adjacent Flushing Bay, sections of the airport were flooded, Many sections of the current renovation have been designed to withstand flood conditions, including implementation of a new “dry flood proofing” program featuring new stormwater pumps, flood proof walls, flood doors and deployable flood shields.