



National Museum of the United State Air Force – Hanger 4

This project was special and challenging due to the design of a dual temperature HVAC water system, the size and height of the building, and the vast amount of equipment and systems to install with a very aggressive schedule. MSD was responsible for all of the Mechanical work including HVAC systems, controls, radon systems, plumbing systems, and insulation for both plumbing and HVAC on this Project.

MSD faced many challenges from the start of the project. We were not able to start our underground plumbing work until the structural steel contractor finished setting the arches which required (3) cranes working in unison, to lift the arches in place. Because of this, we were forced to start our underground in December. In order to help facilitate the schedule, we worked hard to complete the underground as quickly as possible all while fighting the frozen ground. We also, began installing our overhead duct and pipe before the roof was on. This left us contending with the rain, snow and winter winds.

The wind was an especially serious challenge in this project due to the height of the install. The project essentially shut down when winds were in excess of 20 mph. Because of these stringent safety requirements, the roofers were delayed for more than 30 days. In order for us to maintain the schedule, we had no choice but install our ductwork and overhead piping without a roof. We also increased the prefabrication of ductwork and piping which allowed us to continue the project with less of an impact from the jobsite conditions and restraints.

The roof line is 88 feet to the peak and our installation included six return air duct arches following the radius of the half round roof of the museum reaching 76 feet to the top of the duct arches. Nearly half of our overhead rough install was completed using allterrain lifts. We had to coordinate closely with the general contractor – Turner Construction – on a daily and sometimes hourly basis, as we were not allowed to work under the roofers and concrete pours were continuing all around us.

During the spring and summer, our field crews utilized a phone app that would warn them of any nearby lightning headed their way and were able to work around every storm that came, descending down off the lifts safely and out of harm's way. Safety was in fact THE number one priority on this project; Turner employed a full-time safety supervisor on site and with the



excellent coordination and communication between Turner, the Corps of Engineers, our safety director, our foremen, and our mechanics we were able start and complete this project without a single incident even while being delayed approximately (30) days due to weather. With the size of this project and the amount of manpower used to build Museum Hangar 4 it is quite extraordinary and very self-rewarding.

This project was one of the most challenging projects MSD has completed. In fact, it would have been impossible if it wasn't for the leadership of two excellent foremen: Kevin Oney and Jeff Storck as well as their field crews. We can attribute the project's success to the employees and their attention to detail, as well as excellent craftsmanship. Almost every project has its challenges and obstacles, but this one was by far unique. Now when we walk up to Building Hangar 4 and look through those huge doors to view what we accomplished, we only ask one question: "When is Hangar 5 going to start?"

Scope of Work

Installation of all complete HVAC, Plumbing systems including:
Dual Temp HVAC Piping System
(6) Air Handlers
(1) Centrifugal Chiller
Twin Boilers
Cooling Tower
Treatment Skid
Cabinet, Hot Water and Electric Unit Heaters
(4) Base Mounted Pumps
Plumbing Fixtures
Raydon Ventilation System
Building Automation



The Details

Size of Project: 225,000 Square Feet
Length of Construction Project: 12 months
Percentage of work Self-Performed: 85%