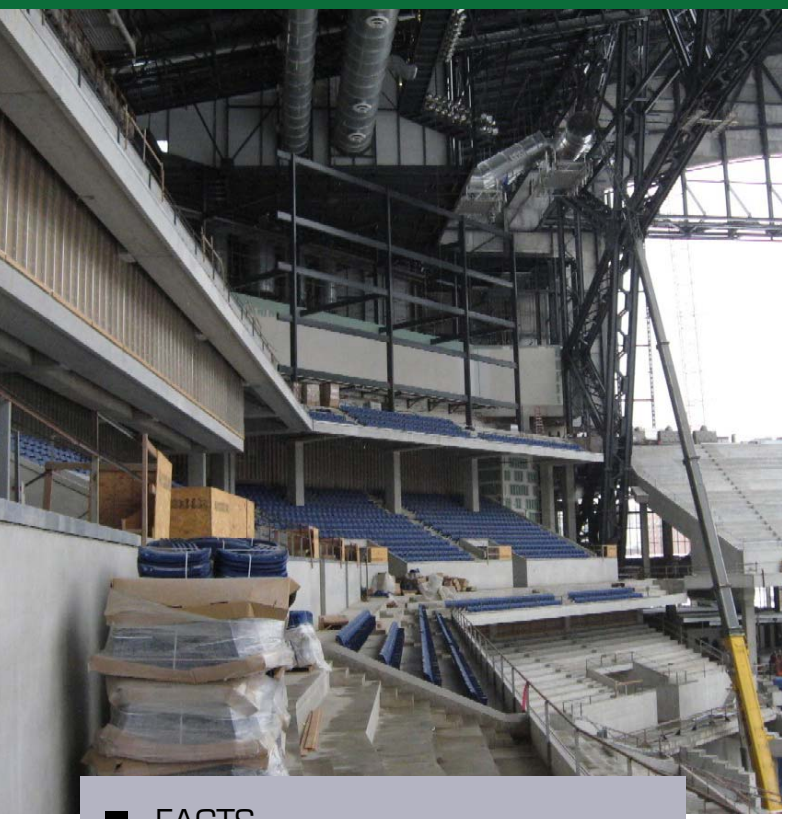
Spiral Duct Gets SUPER-SIZED for New Lucas Oil Football Stadium



Excitement won't be the only thing in the air when fans first gather inside the new Lucas Oil Stadium for the start of the Indianapolis Colts' football season. Innovation will surround them from the stadium's one of a kind retractable roof to the massive spiral ductwork suspended from overhead.

FACTS

Customer:
Lucas Oil Football Stadium, Indianapolis, USA

Need:
Conditioned air for the entire football stadium.

Solution:
1,486 linear feet of Semco 2-inch dual wall spiral duct connected to supply air discharge plenums in all four corners of the stadium.

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"SEMCO was the only manufacturer I felt comfortable dealing with"

The ductwork – as large as 118 inches in diameter–is hung from a 3-piece support system for extra stability against winds when the roof is open. Shipped in 6 ft. long sections, the duct is plenty large enough for a Colt fullback to stand inside. The ductwork will serve as the vital transport system for 1,384,000 cfm of fresh air to over 60,000 screaming fans.

The interior duct is made of perforated steel and the exterior duct is galvanized sheet metal, with two inches of fibreglass insulation sandwiched in between.

The stadium bowl ductwork will deliver conditioned air from supply air discharge plenums in all four corners of the stadium, with each quadrant being served by four dedicated air handling units (AHUs). Supply air from each set of four AHU's discharges into a larger common discharge plenum, which has multiple taps from it that supply the spiral duct in the arena bowl.

The double wall plenums consist of approximately 20,410 gross square feet of sheet metal. (An additional 12,541 gross square feet of plenums will service the fresh air intake requirement for the 16 AHUs as well as miscellaneous exhaust air plenums servicing the loading dock and garage area.) The large plenums made it possible to collect the supply air from the AHUs and move it horizontally to a location where the large exterior ductwork could tap into the plenum top, run across the roof in public view, and enter the arena.

Since the installation is completely exposed, and highly visible, details such as this were extremely important to the overall aesthetics of the stadium.

Moore Engineers in Carmel, IN provided the mechanical design for the stadium. The sheer size of the project added to the complexity of the design and installation.

"SEMCO was the only manufacturer I felt comfortable dealing with for a project of this scale. I've worked with them before as a sheet metal contractor and I know their engineering assistance was strong and available", said Tim Moore, design engineer and Principal of Moore Engineers.

SEMCO Ducts
are designed to meet your every need. You can get specialty fittings to meet your specific dimensions and/or engineering requirements. We can meet your requirements for multiple systems including supply, return, exhaust, underground PVC duct, light material handling, corrosive exhaust and specialty metal duct systems.

Fläkt Woods Group
Fläkt Woods is a global company providing solutions for ventilation and air treatment for buildings as well as fan solutions for Industry and Infrastructure applications.

Contact information
Rick Caldwell
Director of Marketing, SEMCO
+1 573 886 1186
www.semcoinc.com

SEMCO Incorporated

1800 East Pointe Drive, Columbia, MO 65201, USA

t +1 888 473 6264

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