

Monoxivent - Case Study

Lake Land College – Overhead Exhaust Extraction System Replacement



New Monoxivent Motorized Hose Reel System

by John Deere and Lake Land– addresses the full range of technological advances in agricultural mechanization, focusing on John Deere’s Agricultural and Turf Equipment product lines.

The existing system was put in when the building was originally constructed and was suitable for John Deere Equipment at that time. Since then John Deere has increased its engine sizes exponentially, which in turn had made the existing system inadequate. The higher output and higher temperature exhaust was burning holes in the existing hose and allowed the harmful exhaust fumes to leak out. The existing system included 16 hose drops with exposed ductwork. The hoses utilized a rope and pulley to keep them up and out of the way. Monoxivent sent a product manager along with two estimators from affiliate Crawford Company to inspect the existing conditions.

Monoxivent was given the opportunity to provide a proposal for an overhead exhaust extraction system replacement at Lake Land College in the spring of 2014. Michael Kasdorf, Director of Facilities, had a general idea in mind, but was looking for design assistance on the project. Lake Land provides a hands on two-year program that specializes in training students to become John Deere Service Technicians. The John Deere TECH curriculum – designed



Existing Rope & Pulley System

With the help from Crawford, Monoxivent proposed to remove the existing system and replace it with a motorized hose reel system sized for today’s equipment, as well as, larger equipment that may come along in the future. The existing building was designed such that the newer taller equipment was a factor, and all of the ductwork and hose reels would have to be located in between the roof trusses. Crawford was able to build an insulated sheet metal box around the hose reels to prevent any heat loss. Monoxivent used 12 motorized hose reels with series 7120 (1200°F) hose that is 8” diameter and 16’ in length, these are to be used with standard equipment at idle conditions. Four XL-Hose Reels with series 7120 hose also are installed, the XL’s are 12” diameter to be used on engines running under a load or at a higher RPM.

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The hose reels were divided between 2 separate MHA blowers each capable of handling 9600 cfm. The blowers are ground mounted on concrete pads outside the building. The fans are controlled by VFD's and each hose reel is equipped with a blast gate at the end of the tailpipe adapter. The blast gates allow the system to only provide exhaust air to the hose reels that are being used. Energy consumption was a main focal point by Kasdorf, and with the use of VFD's the operation costs are lower.

With a tight window between class sessions, Monoxivent & Crawford were able to provide a turn-key system that will be efficient & functional for years to come.



Ground Mounted MHA Blowers