Catalytic Combustion Corporation has developed catalytic mufflers for a wide range of client equipment and emission control needs.

**Project Summary**

Taking a convoluted, complex project idea to a full production system that is enhancing air quality and environmental emissions.

The development process took place over several months and easily transitioned to efficient mass production of the catalytic muffler and exhaust system to supply this flooring equipment manufacturer a component they can install during their manufacturing process. The new exhaust system is now used on multiple products within a family of ride-on propane-powered floor scrapers.

When a manufacturer of construction equipment reached out to Catalytic Combustion Corporation (CCC) with a challenge for a new exhaust system for their equipment, the CCC team met it head on.

The manufacturer had a problem. They had a very complex exhaust system that they knew needed to be adjusted and potentially redesigned. The equipment they were developing was to run on an engine that was converted from gas fueled to propane fueled, changing the makeup of the exhaust emissions. Not only did they need an emission and sound control muffler for this converted engine, but the equipment also had to pass strict domestic and international air emission standards.
The equipment is used indoors by contractors for removing flooring in commercial, industrial, healthcare, and educational settings. As anyone would anticipate, indoor air quality standards are very strict to protect the safety of the user and any other inhabitants of the space.

The construction equipment manufacturer developing this machinery sought out a vendor who could provide the design and testing services for this complex project as well as efficiently manufacture it and supply it to them long-term. They contacted Catalytic Combustion.

The Catalytic Combustion Corporation’s Exhaust department started by reviewing the current design plans and analyzing the emissions from the propane-powered engine. In addition to mufflers, Catalytic Combustion Corporation is a manufacturer of catalysts for a wide range of industrial emission control systems. A catalyst is a piece of equipment which through chemical reaction rearranges atoms in the molecules of harmful substances into molecules that are better for the environment. For this project, the technology of CCC’s existing muffler technology was combined with their catalytic emission control technology to create a highly effective and efficient catalytic muffler.

CCC manufactured working prototypes which modified standard products to the specific needs of the engine and the emissions regulations. In this case, the mufflers included an all metal catalyst built into the exhaust system. In addition to the muffler itself, the development team provided alternatives to improve upon the design of the entire exhaust system including a new heat shield and manifold design which streamlined the manufacturing process and improved performance and appearance. The result of the design process was a simplified, efficient, and effective exhaust system for the ride-on floor scraper.

Besides designing an exhaust system that fit the equipment and was efficient to manufacture and install, the system had to perform and meet the air and sound emission requirements to meet OSHA, EPA, CARB, and other regulations. The team of engineers at CCC worked with the client through the inspection process to make sure that the new components performed to the standards they needed to. This process can be very time consuming and involve multiple parties, and CCC participated alongside the client to ensure the new product met all the requirements it needed to.