



CASE STUDY

Third Party Testing Verifies the Positive Environmental Impact of Remanufactured Office Furniture

Davies Office Inc., headquartered in Albany, NY is a nationally recognized leader in green remanufacturing and sustainable office solutions. Davies remanufactures several major original equipment manufacturer (OEM) office system product lines and offers highly customized options including ergonomic enhancements and modern styling options that may not be available from other office furniture providers. From remanufactured brand name furniture, to asset recovery and re-deployment services, to exciting new value-creation programs, Davies provides innovative offerings for an affordable and more environmentally benign office furniture solution.



Client Challenge

Davies sought to compare the environmental impacts of their remanufactured office workspace product system to an OEM office workspace product system. The OEM for the Avenir® office system upon which this study is focused is Steelcase, Incorporated. Products of focus include a work surface, divider/wall panels, lateral file, and a storage pedestal.

COE-ASM Work Performed

The Center of Excellence in Advanced & Sustainable Manufacturing (COE-ASM) at the Rochester Institute of Technology (RIT) performed a comparative Life Cycle Assessment (LCA) of a Davies' remanufactured Steelcase Avenir® office workspace system with a new Steelcase Avenir® office workspace system.

The COE-ASM team investigated the environmental impacts of remanufacturing office workspace products by using established LCA modeling. LCA is a methodology used to quantify the environmental impacts associated with all phases of a product or process life from cradle-to-grave, which includes material extraction to manufacturing, transportation, use, and ultimately, through end-of-life (EOL) management. Life Cycle models were constructed using SimaPro 8.0.4 modeling software in conjunction with both the ecoinvent 3 database and actual collected product and process data. There were three office system life cycles compared: a) OEM, an office system manufactured at Steelcase; b) Reman 1, an office system that has been remanufactured by Davies from a Steelcase OEM office system; and c) Reman 2, an office system remanufactured by Davies from a Steelcase office system that had already been previously remanufactured at least one time. The independent life cycle model explains the side-by-side comparison of the two products based solely on the processes used to make each office system component. The combined model explains how the average impact of the office system population is affected by multiple remanufacturing cycles compared to the OEM.

CLIENT CHALLENGE

- Davies sought to compare the environmental impacts of their remanufactured office workspace product system to an OEM office workspace product system.

COE-ASM WORK PERFORMED

- Performed a comparative Life Cycle Assessment (LCA) of a Davies' remanufactured Steelcase Avenir® office workspace system with a new Steelcase Avenir® office workspace system.
- Investigated the environmental impacts of remanufacturing office workspace products by using established LCA modeling constructed using SimaPro 8.0.4 software.

RESULTS

- The environmental impact for selected categories was significantly reduced for the Davies remanufactured office systems.
- Reman 1 and Reman 2 are 13 percent and 15 percent of the OEM life cycle from cradle-to-gate for environmental impacts.

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Results

The environmental impact for selected categories was significantly reduced for the Davies remanufactured office systems. Reman 1 and Reman 2 are respectively 13 percent and 15 percent of the OEM life cycle respectively from cradle-to-gate for environmental impacts. The second remanufacturing life cycle is slightly higher since components are assumed to not be resized in the second life cycle. The first remanufacturing life cycle gets credit for metal depletion due to resizing of the panel and recycling of steel during this life cycle. The analysis of the individual components reveals that remanufacturing of the panels significantly reduces the overall environmental impacts.

Before



After



“COE-ASM was able to quantify the environmental impacts of our remanufactured workspaces versus OEM workspaces. We can now feel confident informing our clients on the positive effects remanufacturing has on the environment.”

- William Davies, President,
Davies Office Inc.

The Center of Excellence in Advance & Sustainable Manufacturing (COE-ASM) is a specialized applied research and development center dedicated to helping emerging and existing NYS manufacturers to enhance productivity and become more competitive through innovation and technology in sustainable products and processes. COE-ASM is located at the Golisano Institute for Sustainability and is a New York State Center of Excellence, a NYSTAR partnership.

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