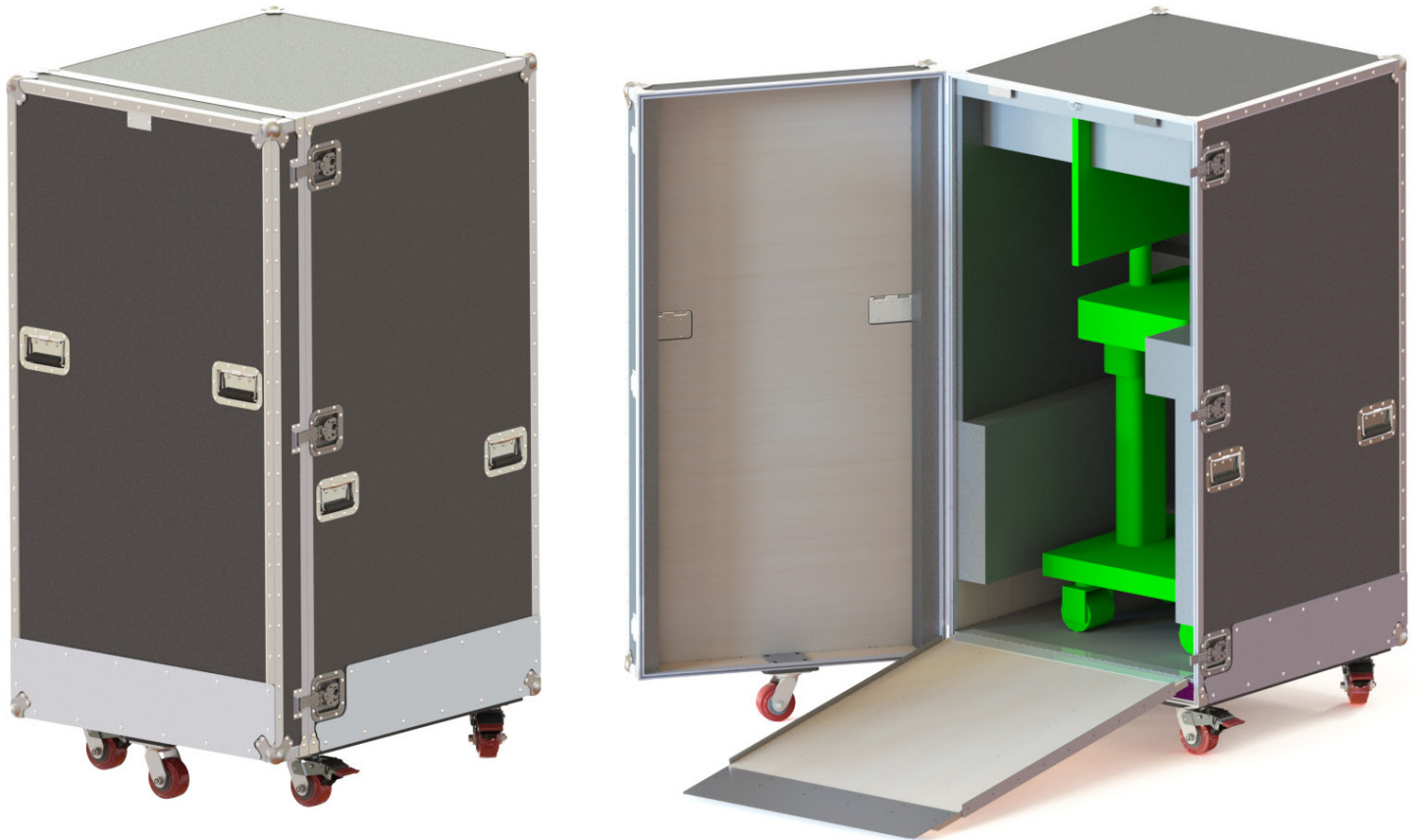


WILSON CASE, INC.

TAKING SHIPPING CASE DEVELOPMENT TO THE NEXT LEVEL WITH SOLIDWORKS AND 3DEXPERIENCE WORKS/SIMULIA SIMULATION SOLUTIONS

Case Study



Wilson Case is leading its industry by elevating the engineering of custom, protective shipping cases through the use of 3DEXPERIENCE Works/SIMULIA Structural Mechanics Engineer and SOLIDWORKS Simulation Professional simulation solutions to innovate, validate, and optimize shipping case designs.

Challenge:

Accurately respond to customer inquiries about product load and performance capabilities without incurring the high cost of physical prototyping while simultaneously saving time and money, improving product performance, and establishing a revenue-generating validation service.

Solution:

Add SOLIDWORKS Simulation Professional analysis software for basic simulations and the 3DEXPERIENCE Works/SIMULIA Structural Mechanics Engineer role for advanced simulations to its existing SOLIDWORKS design installation.

Results:

- Shortened design cycles via virtual prototyping
- Reduced physical prototyping and material usage costs
- Established revenue-generating SIMLab-WCi simulation-driven development service
- Provided value-added validation service to customers while improving product performance

Wilson Case, Inc. has been protecting innovation through the development of just about every kind of shipping and protective case imaginable since 1976. A leading manufacturer of ATA-300 (Category I) shipping cases, the company can engineer and manufacture tough, custom, reusable shipping cases that are able to protect just about anything during transit. Wilson Case has developed custom shipping cases to protect everything from the delicate mirror for the new multi-million-dollar James Webb Space Telescope to plasmas, computers, medical devices, scientific instruments, tradeshow/exhibits, and military and athletic equipment.

The shipping case manufacturer serves a wide range of markets and customers, including the U.S. Department of Defense; prime government contractors; original equipment manufacturers (OEMs); data centers; aerospace, medical, and athletic equipment manufacturers; trade show/exhibit organizers; event production equipment companies; and many more. Wilson Case's experience, custom engineering, and commitment



“Some customers want simulations to drive development of their product, an approach that often requires multiple simulations. For example, a complex product might require five sequential drop tests followed by compression tests, static analysis, frequency analysis, and random vibration analysis. With SOLIDWORKS and SIMULIA simulation tools, we are developing a department to validate and improve the performance of our products while taking on the most challenging, complex projects and generating additional revenue.”

—David Daou, Simulation Engineer

to quality and service have set it apart and helped the company grow over the past five decades.

Wilson Case works closely with its customers to develop custom cases that meet challenging needs. However, in recent years customers have had an increasing number of questions about individual case performance and capacity—questions like, Will my case hold up to 3,800 pounds? Will the contents of my case survive extreme temperatures? Can the case carry a minimum factor of safety of two? Can I stack cases one on top of another, or is there a limit to the number of cases that can be stacked? How will the case protect this sensitive device from vibration? What happens to my product if the case drops out of the back of a truck?

Until 2022, Wilson Case designers and engineers responded to these inquiries by taking steps to further beef up the case, such as by adding material, to ensure it would perform under the customer's specific load scenario, according to Simulation Engineer David Daou. “Because physical testing of every single case and load condition is not economically feasible, our designers would over-design cases in many instances to satisfy specific customer needs,” Daou explains. “That approach added time to development cycles and increased costs by wasting material. What we really needed

were efficient, easy-to-use simulation tools that would enable us to respond to customer inquiries by quickly validating product performance.”

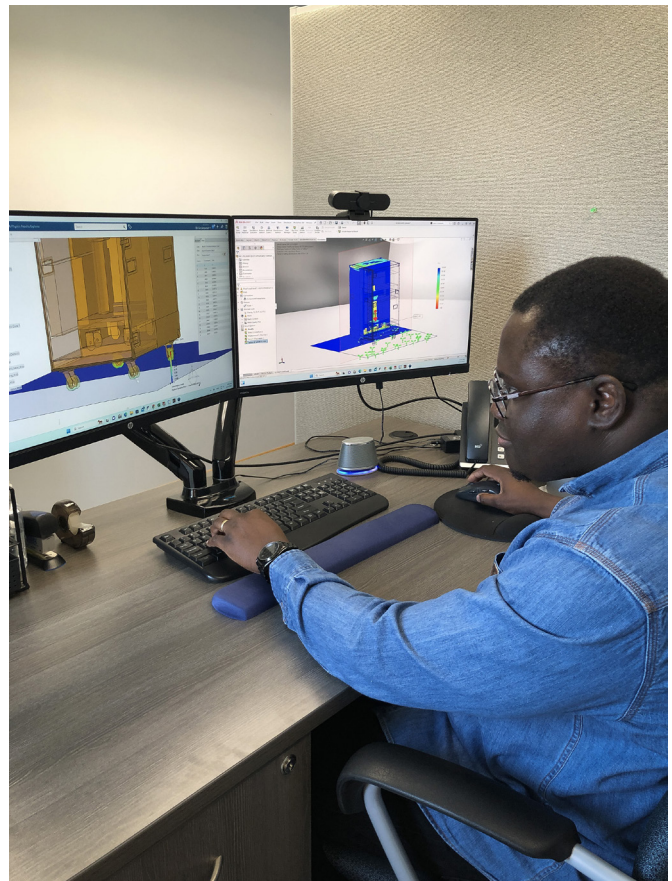
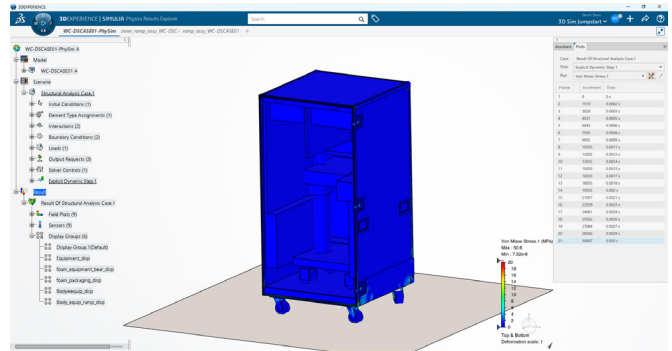
Even though the company’s cases are designed in SOLIDWORKS® CAD software, Wilson Case management decided to evaluate all leading simulation solutions, including SOLIDWORKS, Ansys®, COMSOL Multiphysics®, and SimScale® software. After evaluating these solutions, Wilson Case implemented SOLIDWORKS Simulation Professional software at the beginning of 2022 because it is easy to use, is fully integrated with SOLIDWORKS design software, doesn’t require file conversions/translations, and can handle the linear stress and frequency analyses that represented the company’s most pressing need.

The company then added the SIMULIA® Structural Mechanics Engineer role from the 3DEXPERIENCE® Works portfolio at the beginning of 2023 to conduct more complex analyses, such as drop test impact, thermal analysis, and vibration simulations. The product innovation portfolio leverages the cloud-based 3DEXPERIENCE platform to give customers access to the power of industry-leading tools for design, simulation, manufacturing, data management, and marketing from Dassault Systèmes.

SAVING TIME AND MONEY, IMPROVING PRODUCT PERFORMANCE

Since implementing the SOLIDWORKS and SIMULIA simulation solutions, Wilson Case is saving time and money because designers no longer need to overdesign projects and can point to simulation results whenever customers have questions. “The ability to conduct quick, efficient simulations with SOLIDWORKS Simulation Professional is helping us internally because having these insights shortens development time and optimizes material usage,” Daou stresses.

“Simulation can take the place of physical prototyping on jobs for which the customer wants proof of product performance,” Daou adds. “But even on projects for which the customer doesn’t require a simulation run, providing customers with the results of simulations represents added value that contributes to improved customer satisfaction.”



With SOLIDWORKS and SIMULIA solutions, Wilson Case can quickly conduct both basic and advanced simulations on simple and complex materials—locally or in the cloud—leading the company to establish its SIMLab-WCi simulation-driven development service, a next-level service primarily for OEM customers that not only validates performance parameters, but generates additional revenue for Wilson Case.

CONDUCTING ADVANCED SIMULATIONS ON COMPLEX MATERIALS

Wilson Case acquired the 3DEXPERIENCE Works/ SIMULIA Structural Mechanics Engineer role to conduct more advanced simulations on complex materials in the cloud, which carries the advantage of not tying up local computing resources. “After using SOLIDWORKS Simulation Professional in

2022, we realized that we would need to simulate more advanced phenomena, such as drop test and forklift applications, and needed the capabilities of **3DEXPERIENCE Works/SIMULIA Structural Mechanics Engineer**," Daou notes.

"The **3DEXPERIENCE Works/SIMULIA Structural Mechanics Engineer** role is based on Abaqus® solvers and provides access to a range of material properties," Daou continues. "We used the role's Material Calibration app, which enables you to create your own material properties from a material stress/strain curve, to create material properties for composite plywood, which is heavily used in our cases, from data points obtained in a testing lab."

LEADING INDUSTRY FORWARD WITH SIMLAB-WCI SIMULATION

Wilson Case is the only shipping case manufacturer that is innovating and validating custom shipping case solutions, and offering simulation services to customers who require it. The company is elevating shipping case engineering and helping customers source their shipping case solution faster with greater confidence that they have chosen the most engineered shipping case solution. With the ability to quickly conduct both basic and advanced simulations on simple and complex materials with SOLIDWORKS and SIMULIA solutions, Wilson Case

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"Some customers want simulations to drive development of their product, an approach that often requires multiple simulations," Daou explains. "For example, a complex product might require five sequential drop tests followed by compression tests, static analysis, frequency analysis, and random vibration analysis. With SOLIDWORKS and SIMULIA simulation tools, we are developing a department to validate and improve the performance of our products while taking on the most challenging, complex projects and generating additional revenue."

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