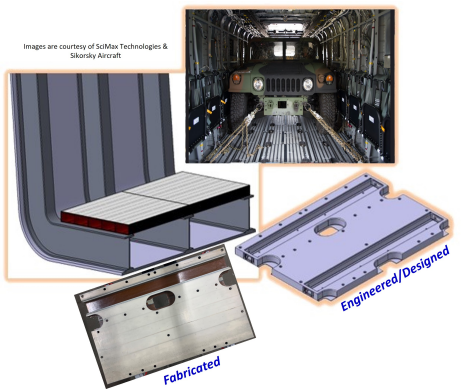


WHO

SYSCOM: NAVAIR
Sponsoring Program: NAVAIR Enterprise
Transition Target: Future Vertical Lift Platforms
TPOC: (301) 342-5872
michael.l.jackson304.civ@us.navy.mil

Other Transition Opportunities: Army V280-Future Long-Range Assault Aircraft (FLRAA), cargo aircraft flooring, and Navy surface ships requiring high impact resistance, durable, and corrosion free structures.

Notes: SciMax is developing a low cost, high integrity pressurized fabrication method for cargo panels that will eliminate the need for expensive, bulky, and heavy platen press machinery.



TP Flooring Panels (LMC.com & SciMax cpoyright)

WHAT

Operational Need and Improvement: The objective is to develop a lower weight flooring via tailored material design for durability and damage tolerance meeting or exceeding static and dynamic load requirements for Future Vertical Lift Platforms.

Specifications Required: The Thermoplastic composite floor panel, materials and design configuration are tailored for durability and damage tolerance and meet Future Vertical Lift operational, static and dynamic load, and environmental requirements.

Technology Developed: SciMax developed an innovative cargo floor design using advanced composite materials that achieve a durable and light-weight design. The preferred material is AS4/PEEK Thermoplastic pre-preg consolidated box stringers back-to-back C-section stringers adjoined at the tips with deltoid filler plies in a matched metallic tooling assembly. The Thermoplastic material has impact resistance and high specific strength and stiffness to weight ratio that can achieve or exceed the damage tolerance requirements with significantly lower weight. The box section design creates a balanced panel for stiffness and ease of fabrication with the desired concentric vertical load path reaction, with load concentricity in the stiffeners reducing crushing and delamination at the corner radius.

Warfighter Value: The lower cost and lighter technology exceeds required carrying capacity and durability over the life of the aircraft. Current weight reduction estimate is about 340 LB. per aircraft. The floor panel design also enables integration of ballistic protection increasing crew safety and survivability.

WHEN

Contract Number: N68335-22-C-0024 **Ending on:** Oct 31, 2023

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Design and Analysis	Medium	detailed design and analysis of a Thermoplastic floor defined weight and cost	4	2nd QTR FY16
Integrated Tooling and Fab	Medium	Fabricated 20x18" Segment with High Lelvl of quality- as a Dem/Val of Itegrated Tooling and MFG	4	1st QTR FY17
Strurutural Dirability/Impact Resistance	Medium	Fabricated 5 20x18" subcopments and tested panels for Static, Durability/Wear and impact loads with very good results	5	1st QTR FY18
Further Structural Validation	Medium	Fabricated and tested 4 additional panels represeting A/C flooring cross section, repated testing with excellent results	6	2nd QTR FY18
Form Fit & Finction, Design, Fab and testing	Medium	Fabricated full scale PrototypeAircraft Representative Panels (PARP), treadway type, initiated testing, with excellent results.	7	2nd QTR FY23
Optimized Form Fit & Finction, Design, Fab and testing	Low	Fabrication/Design Optimized PARP (OPARP), with further weight reduction ready for testing Prototype Aircraft Representative Panels (PARP), treadway type, initiated testing, with excellent results	8	4th QTR FY23

HOW

Projected Business Model: Objective is design and fabrication of low cost and weight Thermoplastic composite flooring systems for the US Navy and the aerospace industry. SciMax plans near term optimized fabrication processes in conjunction with the current floor system supplier, the aircraft OEM, and the US Navy.

Company Objectives: Navy.
Company Objectives: SciMax concentrates on design and fabrication of efficient and cost-effective solutions with advanced composites:

1. Working with the Navy SBIR/STTR Transition Program (STP) facilitating communication with Government and Industry decision makers to facilitate transition and integration of the technology to assure production readiness, essentially having flooring system that can be ready as a remove and replace, a production product, or within a new aircraft initial production. Transition includes optimized low-cost fabrication machinery and equipment.
2. Other DoD programs that will benefit from this impact resistant, low weight and cost technology include Future Vertical Lift, V280 and cargo hauling aircraft, wing leading edges, empennages, and engine intakes. The material can also be used on Navy surface vessel decks requiring corrosion free robust deck structures.
3. Thermoplastic structure with ballistic protection integrated in a single structural element is ready for implementation.
4. An improved version of the product will further reduce cost, improve repeatability, eliminate costly fabrication machinery, and is under consideration.

Potential Commercial Applications: Commercial cargo aircraft could benefit from a cost-effective Thermoplastic structure gaining weight savings, increased payload, better range, and operating efficiency.

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