

21st SYMPOSIUM ON SPACE ACTIVITY AND SOCIETY (E5)
Space Architecture: Exploration and Tourism (3)

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THE DESIGN OF INTIMATE SPACES – A CASE STUDY IN THE CABIN INTERIOR DESIGN FOR
THE XP SPACEPLANE

Abstract

Rocketplane Global (RpG) is one of the leading new suborbital spaceplane development and operations companies, based in Oklahoma City, OK. The XP spaceplane is a horizontal takeoff and landing vehicle which uses conventional afterburning turbojets for takeoff and landing operations and a LOX / kerosene rocket engine for the ascent to space. The XP is a six seat vehicle with one pilot and five passengers. The 2 – 2 – 2 seating configuration is contained within a pressurized cabin volume roughly equivalent to a large sport utility vehicle. A unique feature of the XP seating configuration is that the front right “shotgun” seat is a passenger seat, affording a wonderful view of the Earth from the large front windows. In fact, the view from the second and third rows still provide significant front window views in addition to multiple side windows for each passenger. In addition to all the windows, each passenger will have their own personal video screen to pull up images from any of the eight on-board video channels.

The front right seat also serves as the Mission Specialist / Payload Specialist workstation for suborbital flights for non-tourist markets. Functionality must be maintained for this payload operator workstation throughout the G force envelope from plus 4 G’s to weightlessness in order to assure safe and effective payload operations.

The XP cabin and life support system is designed with multiple redundant systems to enable a “shirt-sleeve environment” for the passengers. With no need for a bulky emergency pressure suit and helmet, the passengers will have a much more intimate connection with the cabin interior environment. Accordingly, great attention to detail is being given to all elements of the interior design, including the seats, monitors, instrument panel, controls as well as the interior hull surfaces and textures and trim. The goal is to provide a truly unique design environment that enhances the spaceflight experience and provides a unique look and feel to the XP cabin as part of the RpG brand building and product differentiation strategy.

The design process as well as the complete cabin design and interior finishing details will be presented in this paper. RpG has teamed with Frank Nuovo, a world-renowned industrial designer with experience at BMW / DesignWorks, Nokia, and most recently the Creative Director for Vertu, Nokia’s line of ultra-premium cellphones.