

Quality function deployment for new standing cabin concept of commercial transport aircraft

ABSTRACT

The main purpose of this paper is to develop the House of Quality (HOQ) for use in the design and development of standing cabin concept for commercial transport aircraft. In short, standing cabin is a new proposed aircraft cabin design concept where passengers are transported in their standing position throughout the entire flight. Quality Function Deployment (QFD) process in this study is focused on the design of the "vertical seat" to be applied inside the standing passenger cabin concept. Data for the HOQ is gathered through an online survey conducted on Malaysian public, including representatives of aerospace-related companies in Malaysia. In addition to that, face-to-face interviews are also conducted with a few experts in the related aviation fields in Malaysia. Based on the obtained information, the HOQ for the seat to be implemented with the standing cabin concept is developed and discussed. The essential design parameters of the "vertical seat" that facilitate in satisfying the expected customer requirements are established from the resultant HOQ and they will be considered in the future development of the seat. It has been found that safety characteristic is the utmost important design requirements ranked by the survey respondents. Furthermore, the main support structure, seat pan, backrest and safety belt mechanism are among the most influential technical design parameters that can be controlled by the designer to ensure successful fulfilment of all driving design requirements for the vertical seat.

Keyword: Standing cabin; Vertical seat; House of quality; Quality function deployment; Commercial aircraft