

Foreword

Airport is an important infrastructure for human society. It is a carrier for the speedy exchange and flow of people, logistics and information flow.

With the rapid development of China's aviation industry, a large number of excellent airport terminal buildings have emerged in recent years. However, we should not only pay attention to the large international airports, but also realize the significance of regional airports which account for a considerable proportion of the airports in China, and should make great efforts to develop regional airports to build a modern, convenient and dense network of regional airports. This helps lay a solid foundation for China's transition from a single air transportation power to a multi-disciplinary civil aviation power, and accelerate the shift to high-quality development of civil aviation. It requires breakthroughs in the planning and design theory of small- and medium-sized airport terminal buildings.

At present, research related to terminals of small- and medium-sized regional airports is of extreme scarcity. As a response, this book focuses on architectural design of small- and medium-sized regional airport terminals, systematically analyzes the existing problems of regional airport design, points out the necessity of innovation, and sorts out the development process of China's regional airports into four "generations," putting forward the "fourth generation" of terminal buildings that have gone beyond the "era of function," "era of style," and "era of culture" to enter the "era of experience." On analyzing the characteristics and deficiencies of the previous three generations, the author puts forward the concept of the fourth-generation "experiential" regional airport terminal. In addition, the author has studied and summarized the excellent regional airport terminal cases in China and many other countries and regions, providing reference for the future construction of China's regional airports.

Given that most existing research on regional airports in China has not yet touched on the design methods of terminal building in the new era, this book explores the design concepts and methods to create excellent experience in terminals based on practice of the author's team, and proposes an evaluation system on innovativeness of regional airport terminal design in the new era, filling the research gap in the field of small airport terminal design for China.

This book systematically presents key outlines in design of small- and medium-sized regional airport terminals, summarizes the general rules and concepts in design, which provides guidance for improving the architectural grace, artistic value, and cultural experience of small- and medium-sized regional airport terminal buildings.

Being rare both at home and abroad, the research in this book will play a leading role in improving the design level of small- and medium-sized airport terminals in China.



National Design Master of Geotechnical Investigation and Survey
General Architect of ECADI

Preface

Accompanied by the rapid economic development of Reform and Opening Up for more than 40 years, China's aviation industry is rising rapidly. As of the beginning of 2022, China's licensed transport airports have reached 248 (excluding Hong Kong, Macao, and Taiwan), the share of passenger throughput of airports in the central and western parts of the country has risen to 44.4%, with a more strategic position, and the civil aviation passenger turnover in the comprehensive transportation has risen to 33%, and a rational layout has been built basically with perfect function, safety and high efficiency.

The “Plan of National Civil Transportation Airport Layout” proposes to continue to promote the nationwide layout of airports, and by 2025, 136 new airports will be added, with a total of 370 civil transportation airports planned for across the country (about 320 airports are planned to be built).

The “‘14th Five-Year Plan’ for Civil Aviation Development” states that during the “14th Five-Year Plan” period, China's civil aviation development will be anchored on becoming a civil aviation power, preparing for the leap from a single civil aviation transportation power to a multi-disciplinary civil aviation power. This requires China's civil aviation to accelerate its transition to high-quality development, which also means that the aviation market still has huge growth potential. Overall, the fundamentals supporting the sustained and rapid growth of China's civil aviation during the “14th Five-Year Plan” period have not changed, and the main contradiction between the unbalanced and insufficient development of civil aviation and people's ever-increasing demand for air travel has not changed, either. The development of China's civil aviation industry is still facing strategic opportunity.

The plan also clearly points out that during the “14th Five-Year Plan” period, it is

necessary to improve the layout of non-hub airports, building a number of new non-hub airports to intensify the network layout. Specifically, the 23 new airports planned for the “14th Five-Year Plan” period are all regional airports, and 57 regional airports are upon new construction and relocation preliminary work. It can be said that in the civil aviation “14th Five-Year Plan” period, the construction of regional airports is the core task. At present, the design, construction and management of gateway airports and regional hub airports of China has been in line with international standards, but those of regional airports still need to be improved.

As a pioneer in airport design and construction in China, East China Architectural Design & Research Institute Co., Ltd. (ECADI) participated in the construction of Shanghai Hongqiao International Airport in the 1960s. After Reform and Opening Up, it started from the first phase of Shanghai Pudong International Airport project, and continued to work in the field of airport construction for more than 30 years, successively participating in the second phase of Shanghai Pudong International Airport, and the satellite hall of Shanghai Pudong International Airport, Hohhot Airport in Inner Mongolia, Taiyuan Airport in Shanxi Province, Hefei Airport and Bengbu Airport in Anhui Province, Kunming Airport, Dali Airport, and Lancang Airports in Yunnan Province, North Terminal Area of Urumqi Airport in Xinjiang, Dingri Airport in Xizang, etc., accumulating rich experience in engineering design for airport construction. The high-level of theoretical precipitation has laid a solid foundation for the writing of this book.

From the perspective of terminal building design, this book combs through the relevant standards and technical points of regional airport design in China, covering almost all the technical details in the planning and design of small regional airports. At the same time, it summarizes the excellent airport terminal design cases both in China and abroad in recent years, and specifically

analyzes their design concepts and techniques, which can provide abundant references for the construction of future regional airports. Meanwhile, this book explores the design concepts, ideas and methods of excellent airport terminal buildings in the new era combined with the airport design practice of the author's team, proposing the evaluation aspects of innovativeness of the design of regional airport terminal buildings, making contribution to innovative design of China's regional airport terminal buildings.

This book is a thematic study on small regional airports after the benchmarking project "Comprehensive Technical Study of Airports" of Arcplus Group PLC (hereafter referred as Arcplus), also as a supplement to that project by further enriching study on airports and improving the related technical reserve. The publication of this book will show the professionalism and competitiveness of Arcplus in the market segment, and bring reference for the front-line designers.

The writing of this book was supported by: Guo Jianxiang, National Design Master of Geotechnical Investigation and Survey, and General Architect of ECADI; Wang Dasui, National Design Master of Geotechnical Investigation and Survey, and Senior General Engineer of ECADI; Shen Di, National Design Master of Geotechnical Investigation and Survey, and Chief General Architect of Arcplus; Zhang Junjie, Vice Managing Director of the Architectural Society of Shanghai China, and General Architect of ECADI; Liu Wujun, former General Engineer of Shanghai Airports (Group) Co., Ltd.; Zhu Jingyuan, former Deputy General Director of Construction Command of Capital Airport Group Co., Ltd.; and Gao Wenyan, General Architect of Shanghai Scientific Technology Development Branch of Arcplus. For their advice and guidance, the author's team would like to express sincere respect and deep gratitude!