



ICAO

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Agenda Item 4: Provision of AOP in the Asia/Pacific Region

– Planning & Design of Aerodromes

**DESIGN AND EVALUATION MANAGEMENT OF AIRCRAFT LOAD BRIDGES IN
CIVIL AIRPORTS**

(Presented by China)

SUMMARY

At present, there are no detailed standards on the design and evaluation for the aircraft load bridges in the world. CAAC has established the specification system and administration standards on the design, load test method and technical condition evaluation guide for the civil Airport aircraft load bridge, which provide important technical guarantee for the planning, design and safe operation of the civil Airports. We would like to share these outcomes with Member States in Asia/Pacific Region to promote the further safety for the Airport operation.

1. INTRODUCTION

1.1 The Airport Taxiway Bridge is an important hub for transportation, which is built through over the obstacles (rivers, roads) in the Airport. Taxiway Bridge plays an important role in selecting Airport site, saving investment, optimizing taxiing route and shortening taxiing time. There is a lack of detailed standards on the design of Taxiway Bridge in the current international aviation standard system. The performance degradation of the Taxiway Bridge in use is inevitable while it is used, and there is also a lack of corresponding detection and evaluation approaches for the degradation at present. CAAC is studying the design and safety assessment of the Taxiway Bridge, in order to establish the corresponding design and technical condition assessment methods and load test methods.

2. DISCUSSION

2.1 At present, there are 247 Transport Airports in China. Since 1970, 70 Taxiway Bridges have been built. Among these, 36 Taxiway Bridges have been in use for more than 10 years. The situation of adopting the standard system of highway bridges for design and evaluation of aircraft load bridge has been changed after the publication of Taxiway Bridge Standards. The new standards can fill the technical gap and provide important technical support for the design and operation of the Airport Taxiway Bridges.

2.2 At present, the relationship between the civil aviation Airport Infrastructure Standard System and these new design and evaluation guide for the Airport Taxiway Bridges is listed in Fig 1 ~ Fig 2.

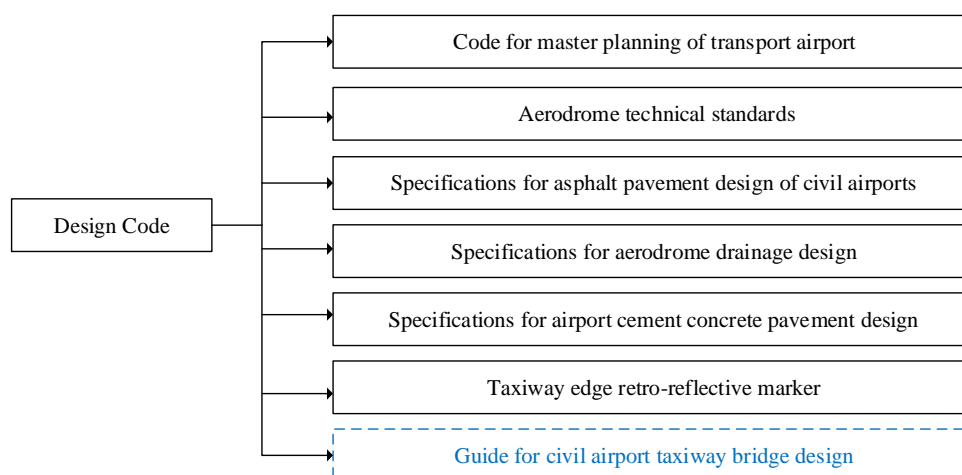


Fig.1 Design Standard of aircraft load bridges in Civil Airports of China

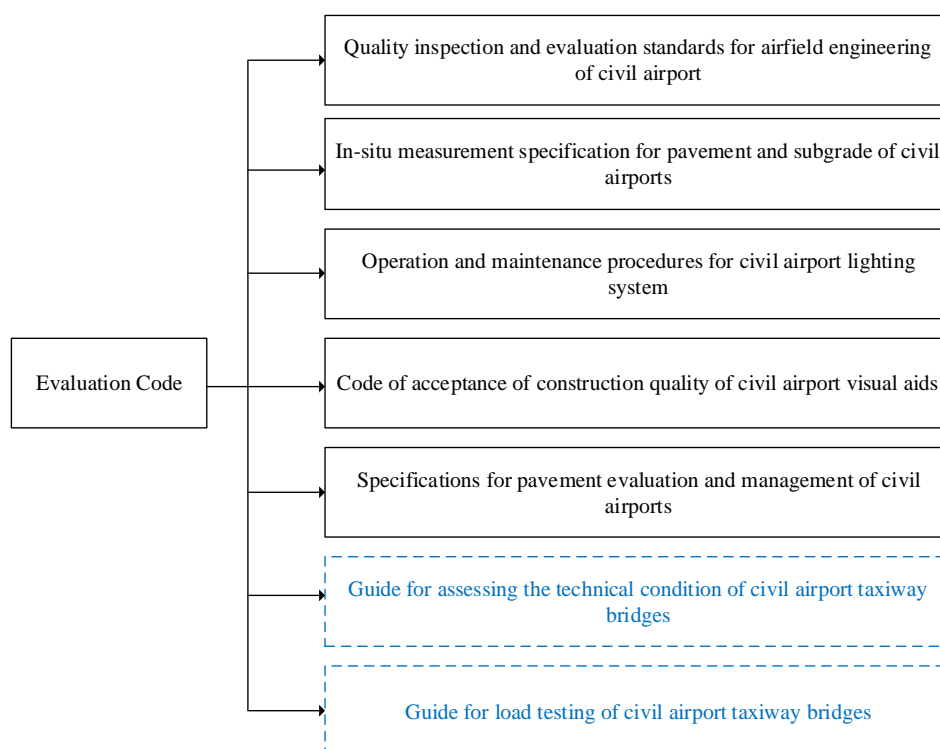


Fig.2 Evaluation Standard of aircraft load bridges in Civil Airports of China

2.3 "Guide for Design of Taxiway Bridges in Civil Airports" is composed of seven chapters, with 49 pages. It establishes a design system for Taxiway Bridge, specifies the overall design requirements of Taxiway Bridges, proposes a structural analysis and calculation method based on the Limit State Method, and gives suggestions on the design for bridge deck systems and safety facilities.

2.4 "Guide for the Evaluation of Technical Conditions of Taxiway Bridges in Civil Airports" consists of five chapters, with 45 pages. It establishes the technical condition assessment system for the Taxiway Bridge, proposes an assessment method that combines hierarchical comprehensive assessment and individual index control, and provides a text format for the Taxiway Bridge technical condition assessment report.

2.5 "Guide for Loading Tests on Taxiway Bridges in Civil Airports" is composed of six chapters, with 33 pages. It establishes three load test methods for Taxiway Bridges, including the weights simulate static loading, aircraft loading test method and quasi-static regression extrapolation test method. It also provides the test procedure and report format for load test of Taxiway Bridge.

2.6 Based on the above three standards, the CAAC is continuing to promote the study on the "Safety Design and Evaluation of Civil Airport Runway Bridges", which will eventually form a complete standard system of Aircraft Load Bridges (including Taxiway Bridge and Runway Bridge). The CAAC plans to translate the Guide for Design of Taxiway Bridges, Guide for the Evaluation of Technical Conditions of Taxiway Bridges and Guide for Loading Tests on Taxiway Bridges into English and share them to the Member States in the Asia-Pacific Region. CAAC will continue to share relevant research and practical outcomes later, and remain open to suggestions for improving the standards.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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