



DESIGN AND CONSULTING

DESCRIPTION OF SERVICES

INTRODUCTION

DESIGN & CONSULTING SERVICES

ADB SAFEGATE can help you understand the status of your airside operations and infrastructure and assist you in deciding when and how to develop them.

From the moment you decide to assess, fully comprehend, develop, increase, or renew your existing airside operations or infrastructure, ADB SAFEGATE's Design & Consulting Services will work closely with you to understand your requirements.

With 75 years of experience in aviation and a truly global reach, we have the expertise needed to assist you from initial assessment studies to detailed issued-for-construction designs.

We realize that every airport is different, and one solution will not fit all. We tailor every solution to each airport's demands, environment, and business objectives. An airport's existing infrastructure often contains hidden and unused capacity that can be released to increase airside performance. We propose project-specific solutions based on the latest market trends and technological innovations to exploit this potential.

Airside infrastructure, systems, and products require meticulous calculations to ensure correct placement, installation, optimized power rating, and functionality.

With our extensive experience, we are well versed in the complexity and specialization required to undertake these airside designs.

Why Choose **ADB SAFEGATE?**

Our team of **highly qualified** and specialized electrical, mechanical, civil engineers, and design technicians are adept in airside works and all associated infrastructure, systems, and processes.

We are the **leading provider of airport solutions**. The Design & Consulting team is surrounded by, and in daily contact with, various experts in all aspects of airside operations and infrastructure, from airside operations experts to airside maintenance experts.

We have global experience with **more than 500** airside consulting and design projects completed worldwide.

ADB SAFEGATE is a **front-runner in airside technological innovations**, which gives us insight into the latest airside systems, product developments, and where the market is heading.

We are **involved in the international regulatory body workgroups** (ICAO, FAA, etc.), which allows us to have in-depth knowledge and understanding of the aviation regulations and upcoming modifications.

We are **experienced in working directly with airports**, civil or electrical contractors, and other design consultancies needing specialized expertise. Our extensive experience allows us to understand and adapt to different perspectives and needs.

CONSULTING SERVICES

Airside Infrastructure Assessment Studies

ADB SAFEGATE helps airports analyze the general conditions of their existing airside infrastructure and propose corrections and improvements.

To complete an assessment study, it is necessary to have as much information as possible about the existing airport infrastructure and the state of the existing airside equipment. The information can be gathered and shared by the airport, collected directly by ADB SAFEGATE via a thorough site survey, or a combination of these two options. Once all the information is gathered, specialized ADB SAFEGATE personnel meticulously analyze the collected data and prepare a detailed infrastructure assessment study.

The scope of this study can be adapted to the airport's specific needs and cover an extensive range of features such as regulatory compliance analysis, infrastructure improvement proposals, maintenance procedure improvements and safety risk analysis, among others.

Airside Operational Performance Assessment Studies

ADB SAFEGATE's exceptional experience in delivering technical solutions and services for the tower, airfield, and gate brings a valuable understanding of airport operations. It allows us to offer intelligent operational solutions to optimize the airport's efficiency, sustainability, and safety performance.

The airside operational performance assessment service requires thorough data gathering and analysis, including interviews with ATC personnel and on-site observations of the ATC work environment and systems. An analysis of the airport's AIP, CONOPS and operations manuals is also conducted, followed by an assessment of the existing airside layout, operations and systems. The conclusions of this assessment allow ADB SAFEGATE to put forward cost-effective proposals for operational optimization and performance improvement.

Obstacle Limitation Surfaces Analysis

As international and national regulations require, airports must have clear awareness of their obstacle limitation surfaces (OLS). ADB SAFEGATE reviews, develops and updates these OLS and, if needed, also completes safety assessment reports for any possible infringements of these surfaces.

Safety Assessment Reports

ADB SAFEGATE understands that each airport is different and that it is not uncommon to encounter deviations. These deviations can be in any form, for example, infringements to obstacle limitation surfaces, reduced approach lighting systems, reduced RESAs, etc. A safety assessment report (also known as an aeronautical study) is required to analyze the implications of these deviations from the international or national requirements. Based on relevant historical data, benchmarking and technical understanding, ADB SAFEGATE prepares these safety assessment reports considering the airport's particularities, including possible budgetary limitations, mitigation measures, and severity/probability analysis.

Airside Systems Master Planning

Following familiarization with the existing airside capacity, operations, needs and infrastructure, ADB SAFEGATE prepares a master plan to develop the airside systems ensuring they are

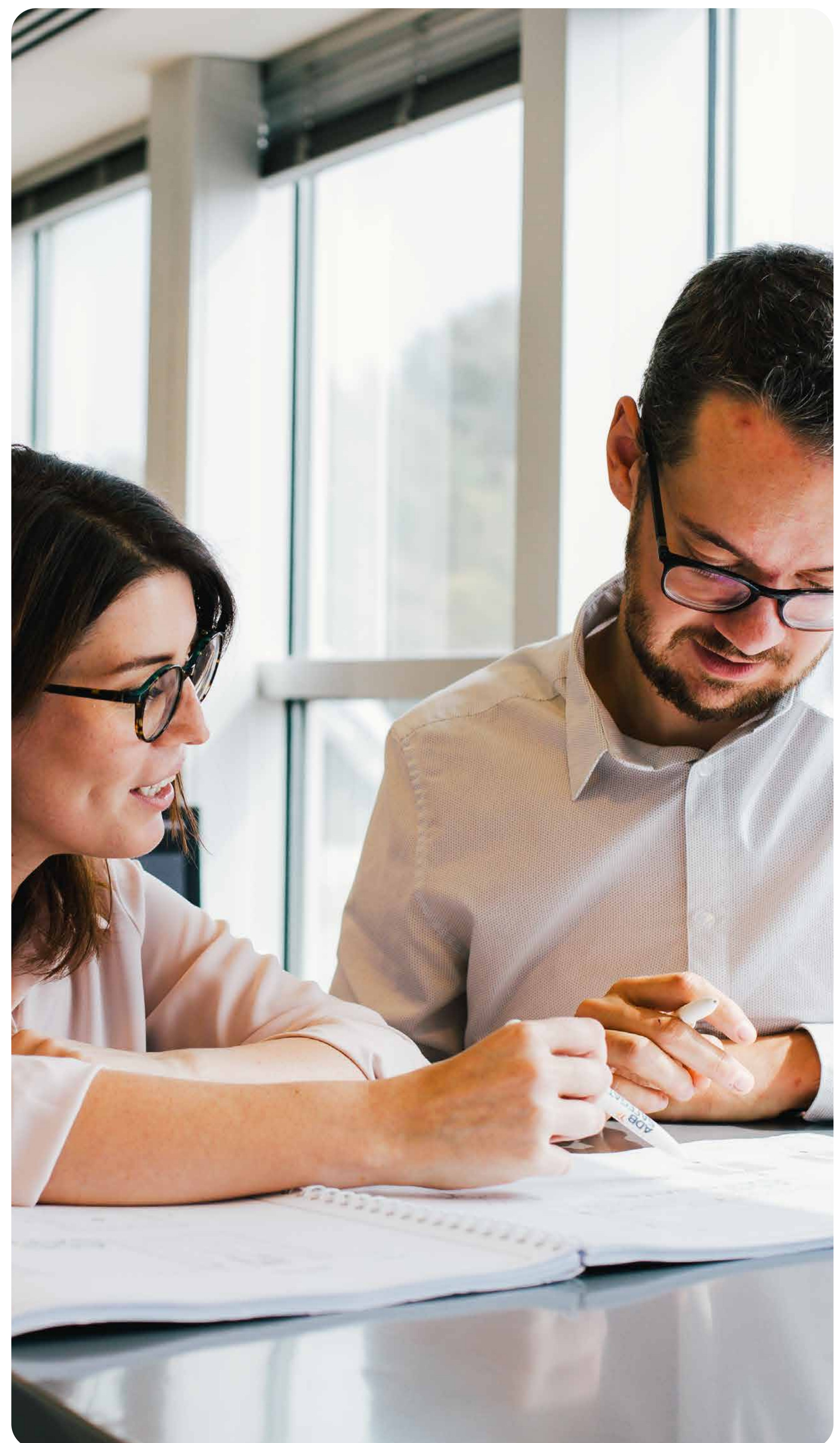
aligned with the overall airport's goals. This airside systems master planning can include different development options, including initial budgetary and timescale estimations. These studies can be specific standalone airside system master plans or can be integrated into larger overall airport master plans.

Apron Planning

Aprons, the most dynamic areas of the airside, are often quite congested with aircraft and ground handling equipment and movements. They are the part of the airside that often becomes a bottleneck for traffic growth and can become a burden on airport and airline performance efficiency.

Whether for greenfield aprons, apron expansions, or improvements to existing aprons, ADB SAFEGATE applies the best practices for apron planning, designing, and marking to provide airports and airlines with an optimized apron layout adapted to their specific needs.

ADB SAFEGATE's specialization in gate products, systems, and services brings a valuable understanding of apron operations. It allows us to offer intelligent operational solutions to optimize the airport's efficiency, sustainability, and safety performance.



DESIGN SERVICES

DESIGN SCOPE

As a market-leading provider of technical solutions and services for the airfield, gate and tower - and thanks to our ample understanding of airport operations - ADB SAFEGATE's design services can cover a large scope:



Airfield Design Scope

- Airfield Marking
- Airfield Ground Lighting
- ALCMS/ILCMS
- Guidance Signs
- Runway Incursion Warning Systems
- Substation Electrical Systems and AGL Power Solutions
- Airfield Sensors and Surveillance Systems
- Meteorological Systems
- Navigation Aids
- Obstacle Lighting



Gate/Apron Design Scope

- Apron Marking
- A-VDGS
- Apron Management Systems
- Gate Signs
- Apron Floodlighting
- Passenger Boarding Bridges



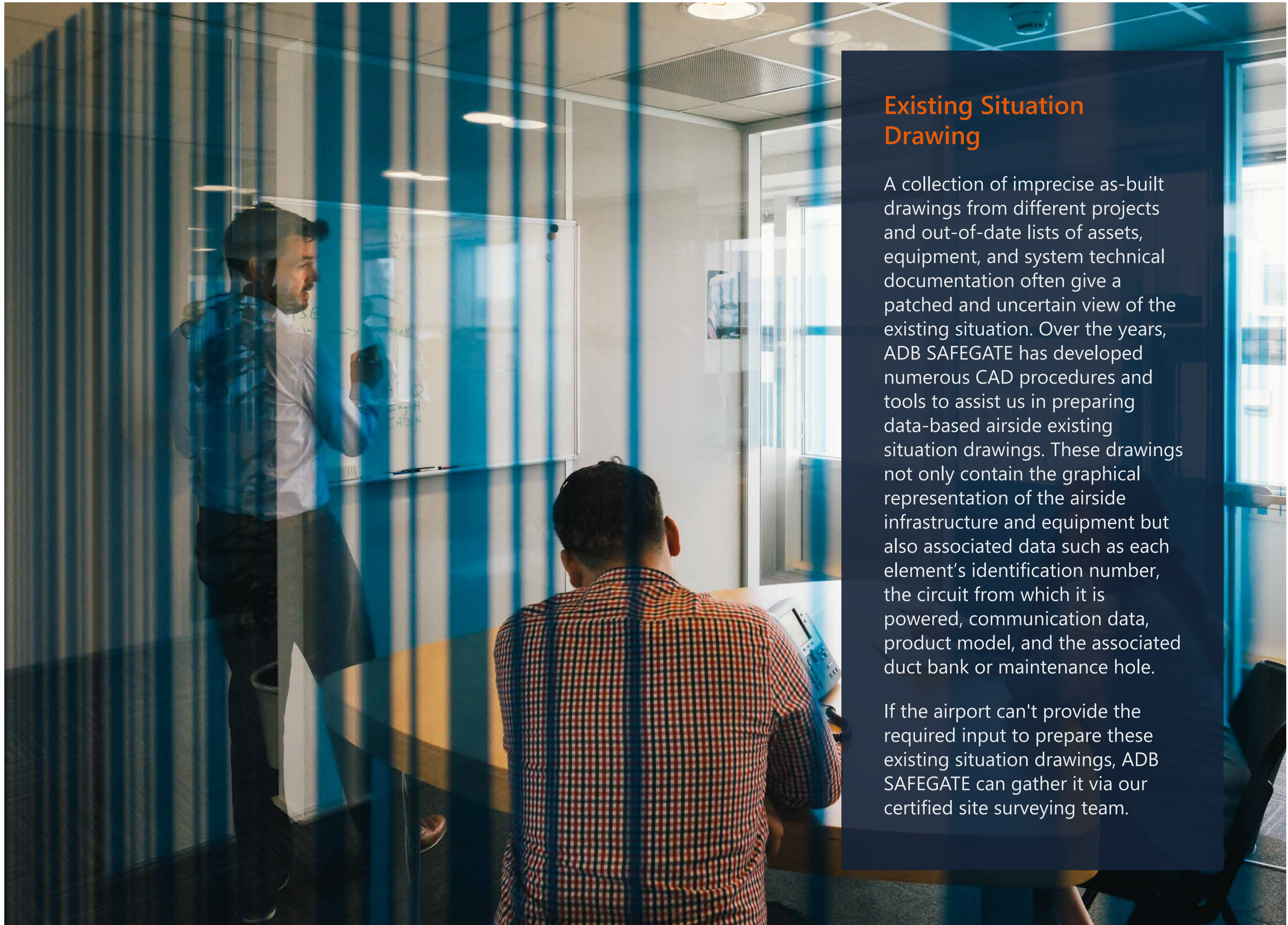
Airside Civil Infrastructure Design

- Maintenance Holes & Transformer Housings
- Ducts & Duct Pavement Crossings
- Foundations
- Airfield Drainage Solutions
- Airfield Cut & Fill Earthworks
- Obstacle Lighting



Heliport Design Scope

- Heliport Marking
- Heliport Lighting
- Heliport Obstacle Lighting



Existing Situation Drawing

A collection of imprecise as-built drawings from different projects and out-of-date lists of assets, equipment, and system technical documentation often give a patched and uncertain view of the existing situation. Over the years, ADB SAFEGATE has developed numerous CAD procedures and tools to assist us in preparing data-based airside existing situation drawings. These drawings not only contain the graphical representation of the airside infrastructure and equipment but also associated data such as each element's identification number, the circuit from which it is powered, communication data, product model, and the associated duct bank or maintenance hole.

If the airport can't provide the required input to prepare these existing situation drawings, ADB SAFEGATE can gather it via our certified site surveying team.



Design Reviews and Value Engineering Studies

A basic, yet essential, requirement for any airside design is to comply with the applicable national or international standards. Thanks to our extensive global airside design experience and our presence in the working groups of some international and national aviation regulatory bodies, ADB SAFEGATE has in-depth knowledge of national and international regulations. We review the airside designs done by others and detect any non-compliance, which could result in airport certification difficulties. Then we propose design modifications to ensure the result is as optimized as possible and aligned with best practices and the latest technologies.



Tender Designs & Preliminary Designs

To ensure compliance with regulations while considering the existing infrastructure, systems and operations, our multidisciplinary airside designers define the airside layout drawings, technical product and work specifications, and initial bills of quantities adapted to the project objectives. These preliminary designs are entirely independent of determining equipment, systems, and services suppliers, and they provide enough detail for precise project budgeting, with a detailed understanding of included infrastructure improvements. Also, for projects at live airports, the team evaluates the need for operations to continue with minimum disruption.



Detailed Designs & Issued-For-Construction Designs

What sets ADB SAFEGATE apart when completing detailed designs is our impressive kit of assessment tools, such as our airside power equipment load calculation tools, PAPI location tools, approach lighting profile design tools, and A-VDGS location tools, among others. These tools have been developed and perfected through many years of airside design experience.

During the design stage, all final details are defined, ensuring smooth progress for the upcoming construction/installation stage. It is essential to focus on the highest quality standards to avoid significant disruptions and unexpected costs during the execution stage.

Our airside designers prepare the installation and construction detail drawings relying not only on their unrivaled knowledge of the airside and its related infrastructure but also on previously gathered, project-specific data. It is, for example, imperative to calculate the structural needs for foundations, maintenance holes or duct banks based on the local pavement and environmental conditions.

These detailed or IFC designs are therefore dependent on the equipment and system suppliers. As the risk involved in such projects is considerably lower, ADB SAFEGATE can offer a more compelling and competitive price for its equipment, systems and services if our design and consulting team has prepared the project designs.

Building Information Modeling (BIM) Services

Airside design in BIM is no longer a vision for the future but is being implemented now. ADB SAFEGATE's BIM personnel (from modelers to managers) are specialized in applying this intelligent planning, designing and asset management process to airside designs. Using powerful BIM design software and tools, we develop BIM models for airside projects making the most of the immense possibilities this 3D design process offers.

Furthermore, don't miss our library of BIM objects. It contains LOD500 BIM objects with all relevant parameters of the products supplied by ADB SAFEGATE. Access can be requested via our website.




Works Supervision and As-Built Documentation

The ADB SAFEGATE airside designers that have been involved in the issued-for-construction design also supervise the installation on-site. They help ensure the construction teams are following the approved design. The airports highly appreciate this technical assistance during the installation/construction phase as it helps achieve the required quality of the resulting infrastructure. This assistance facilitates not only the future commissioning and handover process but also its maintenance.

As part of this service, ADB SAFEGATE also prepares the as-built documentation adapting the final approved design drawings to represent the actual situation in the field. Based on our experience, having realistic as-built drawings is critical to achieving any future project's smooth and cost-effective progress.





ADB SAFEGATE provides integrated solutions that raise efficiency, improve safety, boost environmental sustainability and reduce operational costs for airports, airlines and ANSPs.

The company works with airports and airlines to solve operational bottlenecks, helping them navigate today's challenges and prepare for tomorrow. Solutions encompass airfield lighting, power and control systems, smart airport and tower software solutions, intelligent docking automation and aftermarket services.

ADB SAFEGATE is dedicated to providing its customers with the most environmentally friendly products, thereby enabling them to continuously improve the ecological footprint of the air transport industry.

With 1,200 employees, ADB SAFEGATE serves over 2,500 airports in more than 175 countries, from the busiest and largest like Atlanta, Beijing, Dubai, Heathrow, Charles De Gaulle, Frankfurt, Istanbul, New Delhi and Changi to fast-growing airports across Asia and Africa.

For more information about ADB SAFEGATE, please visit our website at adbsafegate.com

Email: info@adbsafegate.com



**ADB
SAFEGATE**