



# Aerobridge Providing Multiple Access To Aircraft Vehicle

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## The Problem

- With growing technology in making air travel faster, aircraft manufactures have continually increased the carrying capacity of aircraft.
- Using a single jetway, it takes a remarkable amount of time to board a large number of passengers. This causes departure delays and forcing passengers to arrive at the gate at a much earlier time than necessary.
- Every year, airlines lose millions of dollars in delay-times.
- Prolonged delay-time means airlines fly fewer routes for a particular plane. Consequently, this leads to non-optimum utilization of airplanes, which in turn, reflects in extreme negative impact on the amount of revenue that airlines can generate

## Current Solutions and their Pitfalls

Airlines have explored various ways to reduce turn-times. One attempt is through selective loading by zones (Figure 2A). A further attempt to reduce the problem associated with the present practice is the use of multiple door for boarding and deplaning passengers (Figure 2B).

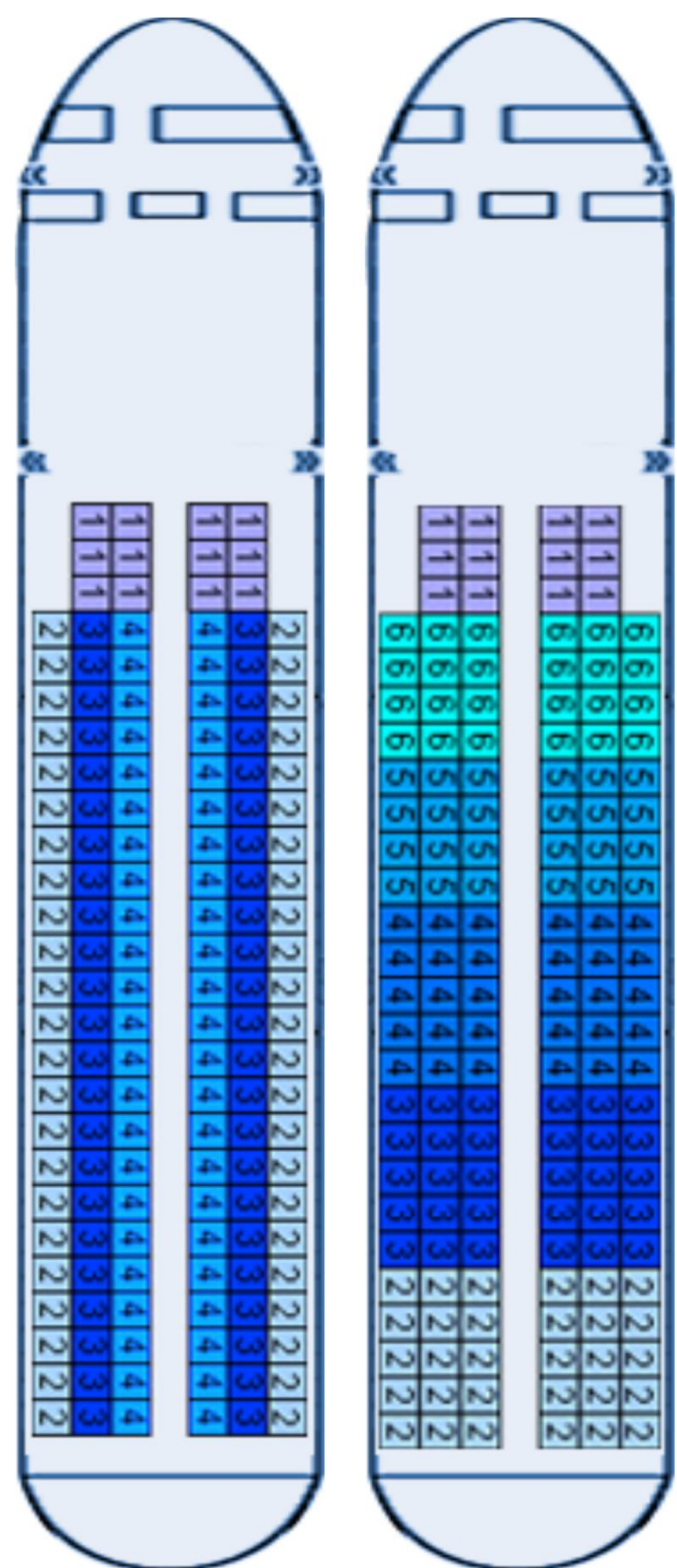


Figure 2A: Selective Boarding Methods

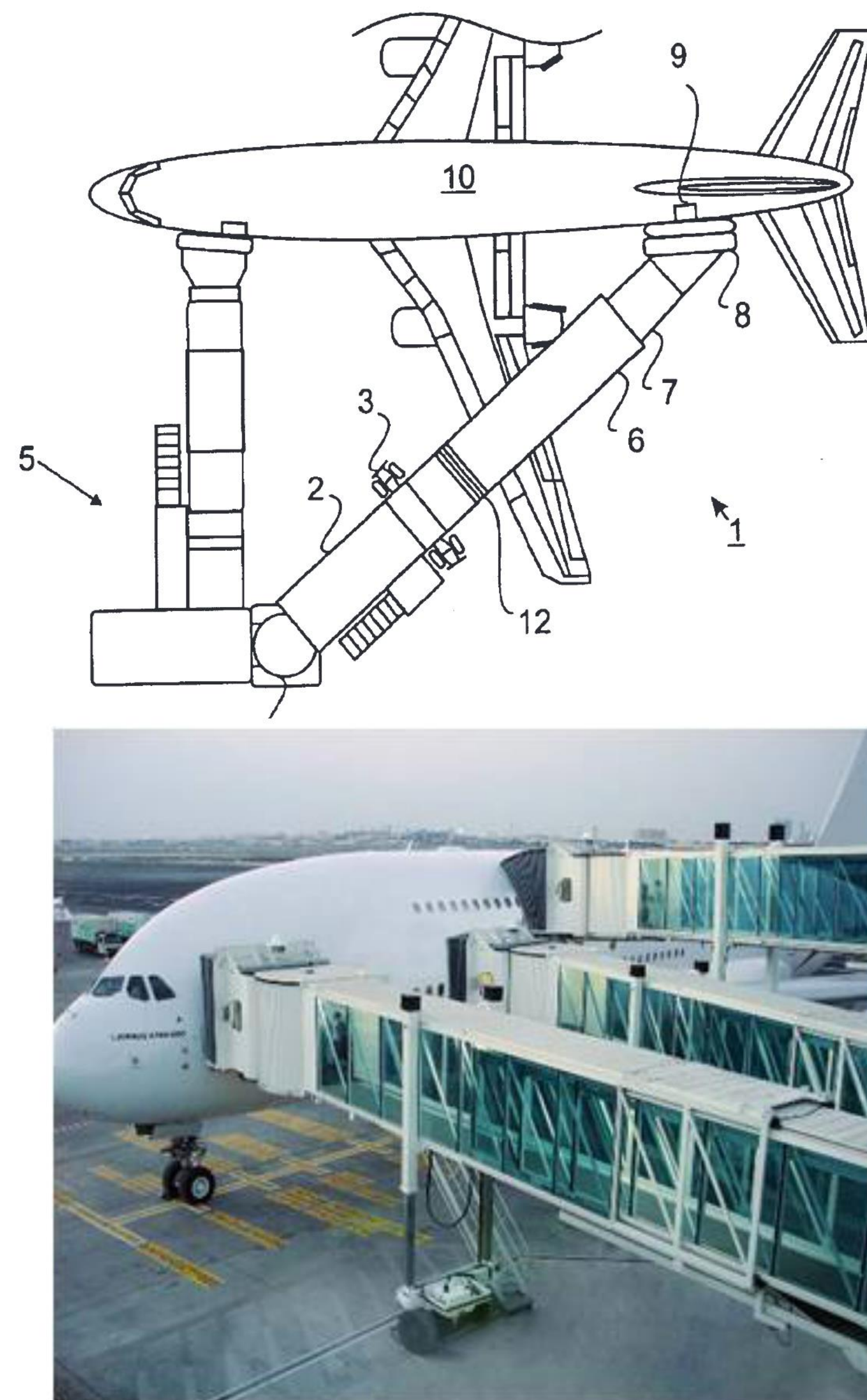


Figure 2B: Multiple Jetways used to service aircraft.

## Why Bother?

TIME SAVED = MONEY SAVED!

With a minimum of \$30/minute in terminal parking fees, a reduction in total boarding time can result in significant benefits for the airline industry. By minimizing boarding time, airlines can improve their on-time performance and increase their aircraft/crew utilization thereby, increasing profitability.

## The Solution

The Aerobridge Providing Multiple Access To Aircraft Vehicle (patent pending) is designed and engineered to mate with aircraft and extend its structures laterally to go over the aircraft wing, thereby, providing a common passageway over which passengers and cargo can enter and exist the aircraft via multiple access doors simultaneously. This invention reflects a deviation from current single telescoping units used to service mid-large sized airplanes and addresses the aforementioned problems associated with current practices (Figure 2B). Using this novel jetway, airlines will gain high efficiency in the aircraft turn-time process.

## Simulation Results

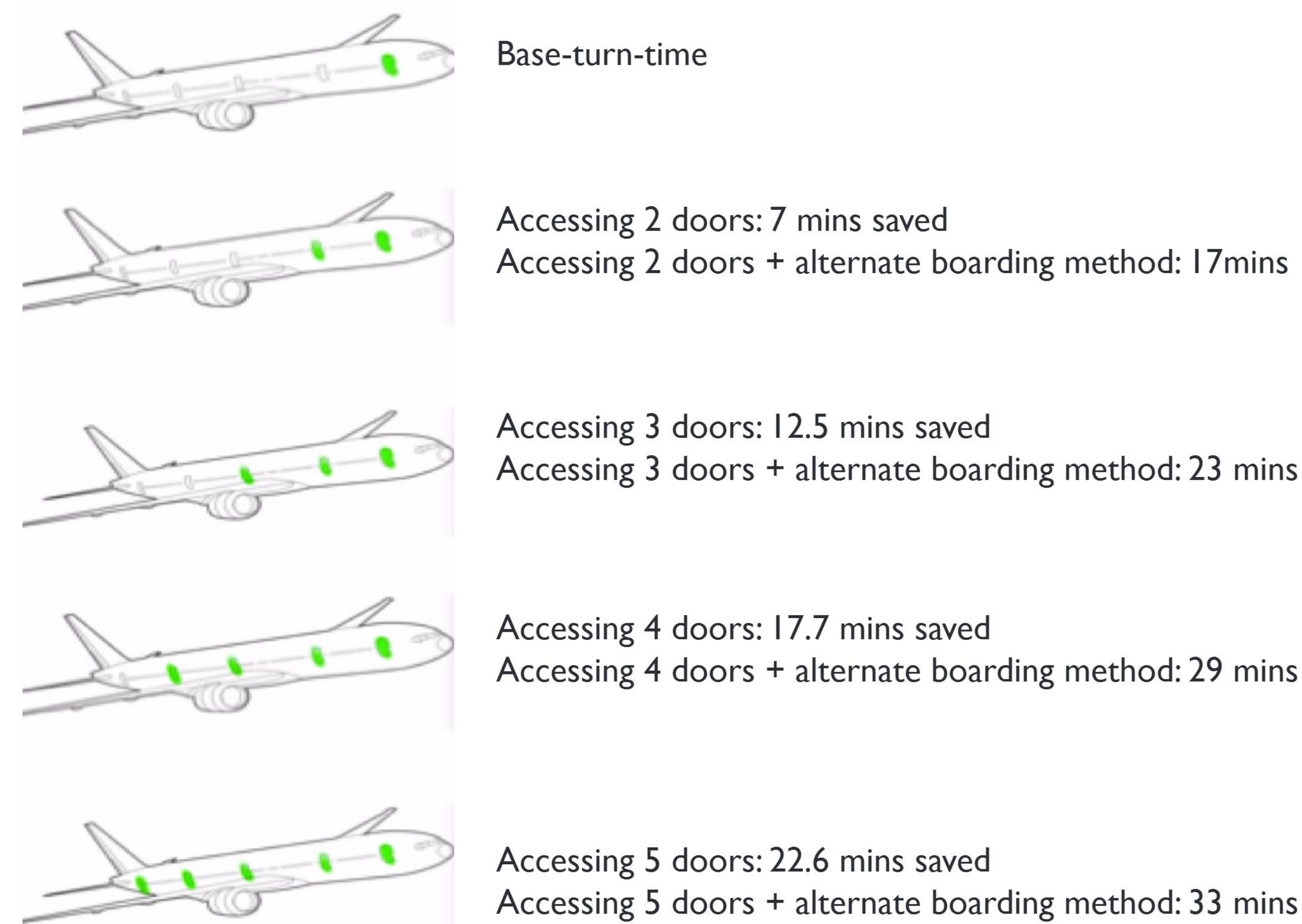


Figure 3: Delay-time significantly decreases as the bridge is used to service more doors for passenger ingress and egress

## Structural Test

The Aerobridge Providing Multiple Access to Aircraft Vehicle is designed to meet the structural and load standards set by the Federal Aviation Administration. The structural design was tested based on a combination that imposes the most adverse loading. Besides the dead loads and strain caused by movement, the structural design will support:

- Floor live load of 40lb/ft<sup>2</sup>
- Roof live load of 25lb/ft<sup>2</sup>
- Wind live load of 2.5lb/ft<sup>2</sup>

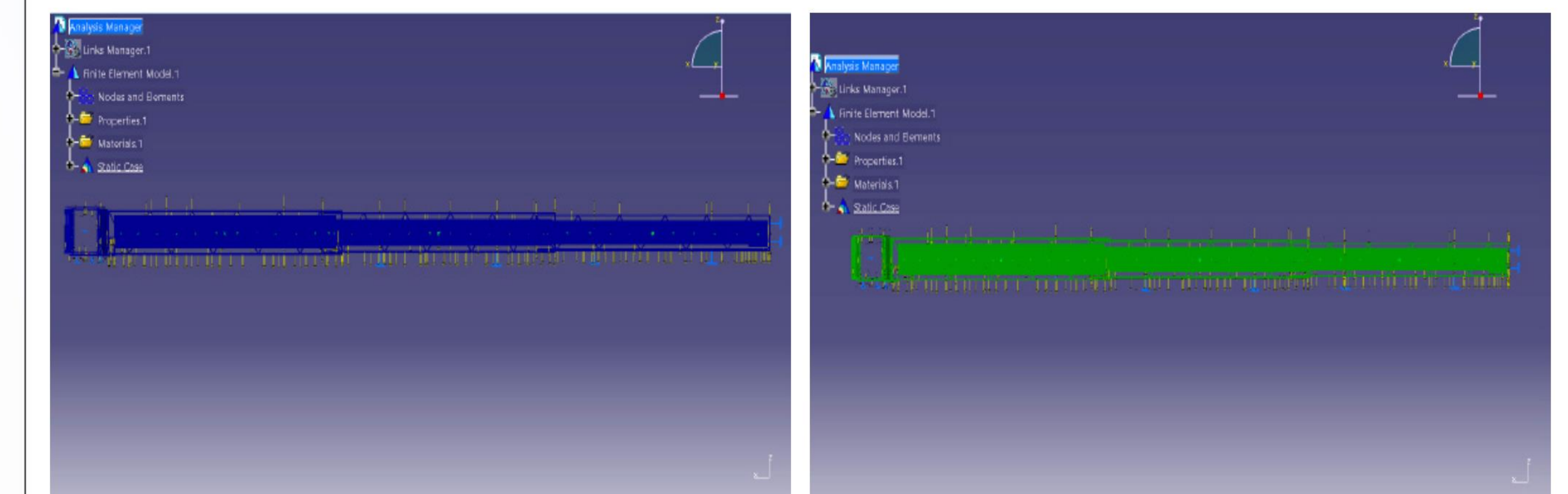


Figure 4a: Stress Analysis using Steel as the frame material

Figure 4b: Stress Analysis using Aluminium as the frame material

## Economic and Social Benefits

- Reduced delay- time for airlines
- Compatibility with conventional systems
- Cheaper system for providing multiple access to airplanes
- Better boarding experience system for the elderly and handicapped
- Smooth and enjoyable boarding process on regional and international flights

## References

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