



How Airport Buildings Can Save Water Without Grounding Growth



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Airports are symbols of modern mobility vast, complex buildings that move millions of people every year. Yet behind the sleek façades and glassy terminals lies a truth that rarely makes the departure boards, airports are among the most water-hungry public buildings we operate. Every flush, every cooling tower cycle, every landscaped forecourt contributes to a daily demand that is only set to rise as passenger numbers climb.

Climate change may be tightening water supplies across the UK and beyond, but

airports don't have the luxury of slowing down. The question is no longer *whether* airports should reduce water use, but *how* they can do so without compromising operations or passenger experience.

The encouraging news? Airport terminals are unusually well placed to lead by example.

Drawing on my experience delivering major infrastructure projects globally, four strategies consistently offer the most meaningful reductions, and none require sacrificing the efficiency or amenity that passengers expect.

Low flow water fixtures

Inside the terminal, smarter fixtures remain one of the lowest-cost, highest-impact interventions available. Low-flow taps, dual-flush toilets, waterless urinals, and efficient shower fittings can slash restroom consumption by more than 50%, and no one walking

through the airport will notice the difference except perhaps when they see the water-saving signage.

Given the enormous footfall, even fractional reductions per person quickly multiply into millions of litres of water saved each year. When paired with smart sensors and real-time leak detection, terminals can eliminate one of the biggest sources of hidden waste: the slow, silent losses that are inevitable in any building of this scale.

Rainwater harvesting

If any building type is perfectly shaped for rainwater collection, it's the airport terminal. With expansive roofscapes, airports naturally capture significant volumes that can be repurposed for toilet flushing, irrigation, or cleaning operations.

But the practical challenges are becoming harder to ignore. As dry spells lengthen, the gap between water harvested and water needed widens. Meanwhile, the reality of airport design, packed with underground services, ducts, cables, and utilities leaves limited room for the vast storage tanks required to make a system worthwhile.

Rainwater harvesting remains a valuable tool, but it must be applied thoughtfully, with clear-eyed realism about yield and available space.

Grey water recycling

Greywater recycling, however, is a different story.

Because terminal washrooms are typically clustered and, in some cases vertically stacked, airports present an ideal configuration for collecting shower and basin water, treating it, and using it for non-potable purposes such as flushing. Unlike rainwater harvesting, greywater systems offer a near-continuous inflow that mirrors usage patterns. That makes the required plant much smaller and far easier to integrate — often within cleaning rooms or compact plant areas.

Collected WHB wastewater can significantly offset water required for WC flushing when taking account of low/dual flush WC's and factoring in waterless urinals

Although showers are often installed they are limited and omitted from this calculation. Consideration to soap concentration must be noted which directly impacts the Greywater plant and the maintenance program.

When applied across multiple toilet blocks, the total potential water savings increase significantly, offering substantial cumulative benefits.

Visibility: Turning infrastructure into influence

Perhaps the most underrated advantage airports hold is their visibility. From refill stations to real-time dashboards showing water saved, sustainability is something passengers can see, not just assume.

That visibility matters.

Airports sit on a global stage. The decisions they make don't just reduce operational costs; they shape public expectations of what responsible infrastructure looks like.

Airports will always be gateways to cities, to countries, to opportunity. But in a future shaped by water scarcity, they also have the chance to become gateways to better practice.

By embracing smarter systems and thoughtful engineering today, airport buildings can demonstrate that sustainability and scale are not

opposing forces. They can show that growth doesn't have to drain resources and that even the busiest buildings on earth can learn to use water more wisely.



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