

THE MAGAZINE OF THE CONCRETE SOCIETY

# CONCRETE

Volume 60, Issue 4 May 2026

## SPACE HOUSE LONDON

The reimagining and extension of  
a Grade II-listed Brutalist icon

### TESTING CONCRETE

Modern approaches to condition  
testing and structural investigation

### PAVEMENT QUALITY

Managing logistics and the  
weather at Edinburgh Airport pour

# ON SOLID GROUND WITH PAVEMENT-QUALITY CONCRETE

On a major contract for Edinburgh Airport, managing logistics has been as important as dealing with the weather and wide experience with placing pavement-quality concrete. **Martin Arnold** of **Careys** reports.

**M**otorists are well accustomed to encountering potholes at roundabouts and road junctions where the wheels of fully laden HGVs have chewed up the asphalt. Imagine, however, what the state of our roads would be like if lorries weighed 200–300 tonnes and manoeuvred at 150 or more miles an hour?

These figures, though, create the dynamic forces exerted by modern wide-bodied airliners as their landing gear impacts the touchdown zone (TDZ) every few minutes at our busiest destinations. And although the runways are normally surfaced with ‘asphalt concrete,’ pavement-quality (PQ) concrete provides their structure as well as that of taxiways, parking bays and hangar floors. Significantly, although the specification for PQ concrete is internationally accepted, the mix design, placement and

---

“The eventual strategy deployed helped make the landside to airside journey go far easier, reducing time lost to security checks and maximising work on the project.”

---

overall quality control remain critically important factors requiring expertise.

As a UK civil engineering contractor serving the commercial and military aviation sectors, Careys is undertaking a 67-week contract at Edinburgh Airport, where it has fine-tuned its methodology to achieve admirable productivity in creating a completely new overspill area for planes, at the heart of the busy airfield.

Padraig Sheerin, Careys’ project

manager, confirms, “Though we have been involved at Edinburgh Airport over a number of phased contracts, we have never before undertaken anything of this scale actually *inside* the airside security fencing. It is very much a heavy civils contract with a complex pattern of services criss-crossing the entire area, with an emphasis on future-proofing the facility’s capabilities. This is particularly with reference to fibre, which demands very high standards of accuracy when installing the ducts as well as the other services, while striving to maximise productivity and ensuring we minimise disruption.”

Sheerin, in fact, spent an unprecedented six months consulting with the client’s team on evolving a viable strategy for tackling the work, prior to the contract being awarded. However, due to practical considerations, it involved an approach completely



Midfield Stands project pre works commencement.



**ABOVE:**  
Midfield Stands project as works near completion.

**BELOW:**  
An excavator fitted with a concrete pouring bucket delivers fresh concrete.

**BELOW RIGHT:**  
Airfield PQ concrete works.

different to back in 2019. Here, Careys completed the Phase 2A and 2B Stand Development as part of the 'Edinburgh 2040 Masterplan', which seeks to increase both capacity and flexibility at a facility crucial to the Scottish capital's business community, as well as the region's tourism. Pivotal to the successful outcome back then was the decision to flip the work area from 'airside' to 'landside' by realigning the security perimeter. This greatly simplified the construction of 13 new aircraft stands, along with the extensive earthworks and service provisions, which included building a 70 x 30m rainwater attenuation tank.



Unfortunately, such chicanery was completely out of the question for the present 'Midfield Stands' project, which requires Careys to construct five (potentially rising to eight) new bays in an area previously used to store snowploughs and other plant. The eventual strategy deployed helped make the landside to airside journey go far easier, reducing time lost to security checks and maximising work on the project.

### CHALLENGES

For those not familiar with the challenges of laying PQ concrete, the mixes are very strong in terms of cement content, as well as

being low slump, which leaves the contractor less than half the window of consistence compared with what might go into conventional slabs or structures. Site batching wasn't feasible and although the supplier, Holcim, was only 5 miles away, the 2½ hour time limit on finishing was a real cause for concern. According to Paul Donnelly, Carey's construction manager, "It takes 10–12 minutes to load one of the tipper trucks with 8m<sup>3</sup> and 20 minutes to get here by road, but they can only get through the security gates into the airport if the escort is ready and waiting. It's not a particularly workable product, so you have to





have the right machinery available.” While pavers were used in 2018–19, all the concrete this time is being hand-laid, though the kit includes machine-mounted vibrators. Speedcrete has marked a UK first by recruiting Allen Engineering in the US to deliver a bespoke triple roller, which spans the very robust PQ pans that, after successful demonstration, were hired. These are deployed to produce the different slab thicknesses, which vary from 300mm for the header stands to 480mm for aircraft stands and 500mm for the new taxiway, which accesses them. There are also very strict requirements on bay sizes, where, apart from a small number of 4.25m infill bays, the rest of the pours are 6m wide and are saw-cut at the same interval in the hours following. If the last tipper for the day comes up short of the line, the whole section has to be dug out again.

#### GOOD RELATIONSHIP

The big win, though, came as a result of canny negotiation and the confidence the company had built up with its client over recent years. Such is the good relationship with Edinburgh Airport, Careys has become one of the few contractors to bring its own welfare units into the airport confines, extending to offices, toilets with showers and a canteen. Along with its own diesel tanks for refuelling the different plant, this has saved marshalling all operatives into mini-buses to get them outside – and back – for two breaks a day: a potential four-hour loss out of a ten-hour shift.

Donnelly says, “During the summer months, when the weather is hot, we operate a day shift to look after all site works, followed by a back shift. This typically consists of three

operatives who are essentially a cutting crew – saw-cutting out the PQ joints in the bays poured that day. During the colder months, we can pour the PQ and then cut the bays the following morning, as lower temperatures extend the curing times. Weekend working is primarily used to maximise preparation for PQ pours, which ensures that when we do get a dry weather window, we are fully ready to pour.

“Overall, co-operation and communication are two big factors you have to strive for on any airside work and we are on course to finish the contract, with all the work taking place inside the airport confines, without having caused any issues to the running of the airport. Our aim is to start and finish the job without the airlines and staff ever knowing we were here. This has meant all our people – including 15–20 subbies at times – respecting all the security requirements, thinking about foreign object debris (FOD) and keeping clear of the barriers.”



With the contract on time to complete on schedule at the end of May, Sheerin reflects, “Sometimes we have to gamble, speculate to accumulate, but we have to then accept this is Scotland, not the Bahamas. Here, you have the possibility of being snowed in from December through February. Our provisional target was to achieve 540m<sup>3</sup> of PQ pours over three days, but the best rates have been in the order of 250m<sup>3</sup> a day, in combination with the excavation works, plus laying 600 tonnes of 6F5 stone and 300 tonnes of Type 1 a day. So, it’s a big compliment to the boys on the park for what they have done and the relationship that has been built with the client.”

**ABOVE LEFT:**  
Section of PQ concrete works.

**ABOVE RIGHT:**  
Installation of steel reinforcement bars.

**BELOW:**  
Midfield Stands project mid works.

