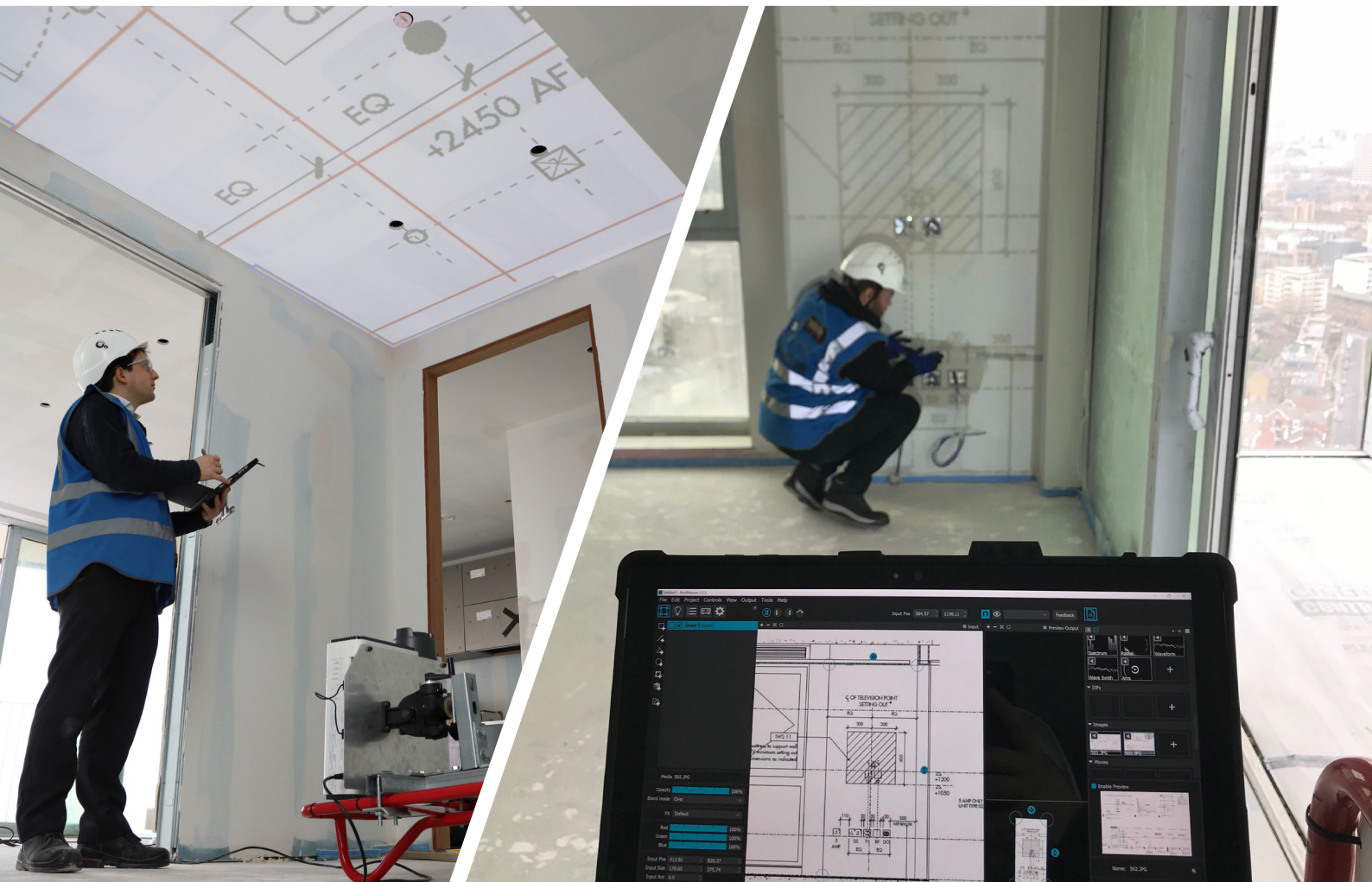


# Projecting the right image



The tallest luxury residential tower in London was the test-bed for a novel projection demonstrator developed by the AMRC which looks set to yield more than 50% productivity improvements for skilled construction tradesmen, along with big gains in the quality of final fit-outs.

Two-Fifty-One in Southwark, which topped out last month at a height of 131 metres, was provided by Laing O’Rourke as a use-case for an Innovate funded project that explored how digital projection technologies could be deployed in marking-up component positions such as power sockets, lights and sprinklers.

“The construction industry has changed very little over recent decades, but, as the Farmer Report demonstrates, it needs to embrace digital technologies if it is to remain competitive and improve margins,” says Chris Freeman, the AMRC’s Factory 2050 Digital Theme Lead.



“The industry may use Building Information Modelling (BIM) to design a building, but the digital journey seems to end at the building site where trades use drawings to complete the construction. Our demonstrator is a simple, smart and effective way of bridging the gap between digital design and paper-based construction processes.” Says Diego Aranda, AMRC Systems Technical Lead who managed the project.

The results are staggering. Operators who tested the bespoke projection mapping system on a number of prestige buildings in the Capital were able to complete the mark-up process of an entire floor in 34.5 hours: a time saving of 45.5 hours. This is chiefly due to way the software has been adapted to allow operators to map and project a PDF drawing onto a wall, floor or ceiling within an apartment.

The solution the team came up interfaces with other data and documents; knows what to project and where; is easily moved; requires minimal user training; minimises potential tripping hazards; and has the robustness for construction.

“Our design is both simple and robust and the operators really like its ease of use,” says AMRC Senior Project Engineer, Arthur Kershaw, who designed and built the dolly-based projector system. “It might not look hi-tech, but that is part of its attraction to the trades people. One of the challenges of digital technology is that it can frighten people off: this is instantly recognisable and accessible.”

A 3D model of an apartment building was used to understand how the spatial limitations of the site would dictate the required throw distance of the projector. The size and shape of the projection unit was such that a sack truck was an ideal transport medium for the entire system. Prototype designs were made which would allow mounting the projection unit onto a sack truck. This would allow for the system to be easily moved around the site and provide a stable platform to project from.

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For further information please contact Michael Lewis:

 0114 215 8200

 [m.lewis@amrc.co.uk](mailto:m.lewis@amrc.co.uk)

 [amrc.co.uk](http://amrc.co.uk)