

COLLABORATING WITH BUSINESS

by academics in Arts, Humanities and Social Sciences

Relationships opened new doors for Edinburgh College of Art Professor

Remo Pedreschi's 15-year industry collaboration has led to significant improvements in safety and security in Scottish social housing.

Built to offer brighter futures for families in the post-war years, by the 1980s a large number of social housing developments in Scotland had become synonymous with deprivation and crime.

Cities have since demolished many high-rise schemes, such as Glasgow's notorious Red Road Flats, and renovated or replaced the 600,000 local authority and housing association homes which remain.

Professor Remo Pedreschi says making housing more secure by controlling entry into developments is key to improving tenant satisfaction.

"In 2004, we were working on a UK Research Council and Scottish Enterprise-funded project to consider new methods of steel fabrication, when SE's team put me in contact with Glasgow-based steel fabricators Martec Engineering", he recalls. "Founder Martin McHugh explained how the company made security doors and screens for local authorities to improve resident safety. They needed help to



make their manufacturing system more efficient, and I saw a way to have an impact."

"Known as a Teaching Company Scheme at the time, the project gave Martin and his team the additional funding and expertise they needed to make significant process improvements", he explains. "It also paid for a University-employed Knowledge Transfer Associate to work with the company. The research we undertook led to publications and a redesigned secure-door system which has since been implemented by a large number of local authorities. The associate brought so much to the project he joined the company permanently after it finished."

Soon after, specialist stonemasons, Watson Stonecraft invited Remo to help it develop new cladding techniques for modern buildings. The project delivered valuable new research. However, five months before it was due to be completed in 2008, the company fell victim to the economic downturn and went into administration.

“It was a sad and sudden way for a business that had been so influential in architectural conservation and new developments across Scotland for more than 140 years to end”, Remo reflects. “It showed me how vulnerable even long-established firms could be and reinforced my commitment to using my research to support industry.”

Martec also struggled through the downturn. However, despite the challenges, Remo and Martin stayed in contact. In 2014, they embarked on a new three-year project - this time under the new Innovate UK Knowledge Transfer Partnership Scheme. The project would progress the fabrication process and design of entry systems, improve their performance and extend their applications into new markets such as commercial and other public sector buildings. However, balancing security with aesthetics was not an easy task.

“To meet the ‘secured by design’ standards set by the police, most secure door systems use electromagnetic locks”, Remo notes. “However, as soon as you make a door lighter and add more glass to make it more attractive, the added flexibility can make the lock easier to disable.”

Together with Martec’s Managing Director Gary Miller, Remo formed a core team which included a new Knowledge Transfer Associate. Combining architectural skills with sound technical knowledge, he says former student, Keith Milne, was the natural fit for the role.

Following extensive research and testing, the project developed a new system which used an electromechanical lock. The new design provided improved flexibility and increased the amount of glazing the doors and panels could accommodate without compromising security. It also had additional benefits.

“Unlike electromagnetic locks which can be difficult to override in the event of an emergency, this new lock system can be opened manually from the inside providing an effective means of escape”, Remo explains. “The Grenfell Tower tragedy brought into sharp focus how much of an impact this can have.”

When the project came to an end in October 2018, Martec appointed Keith to the new role of Design Manager.

Industry partnerships have added enormous value to Remo’s research and teaching, but despite his extensive experience, he still finds each one a challenge.

“As an academic, you must always balance industry engagement with your research output to ask; ‘even if I don’t get a paper out of this is it worth doing for other reasons?’”, he suggests. “Having begun my career working in research & development in manufacturing companies, I empathised with Martec. I could also see the company was a good employer, maintaining skilled work in a sector that had been in decline. Nonetheless, encouraging business to spend money on new product developments will always be challenging, particularly with SMEs.”

“Ultimately it comes down to trust which develops over time, perhaps through smaller but gradually increasing engagements until you establish a mutual understanding”, he adds.



Developed in collaboration by:

