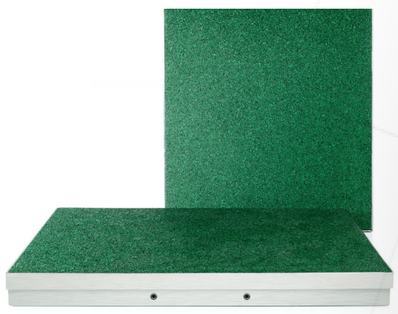
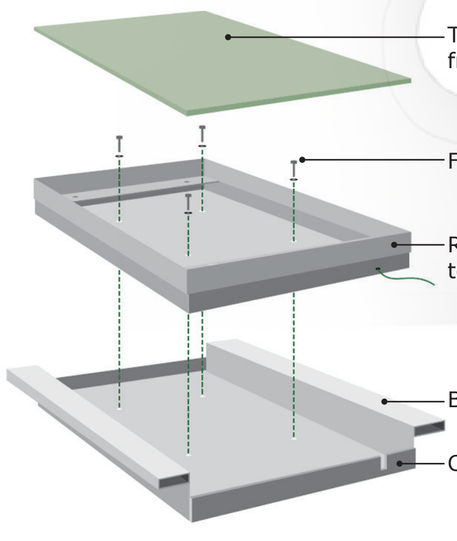
PAVEGEN RESEARCH
32 TO 34 HILL STREET, BIRMINGHAM
FINANCIAL SERVICES FIRM

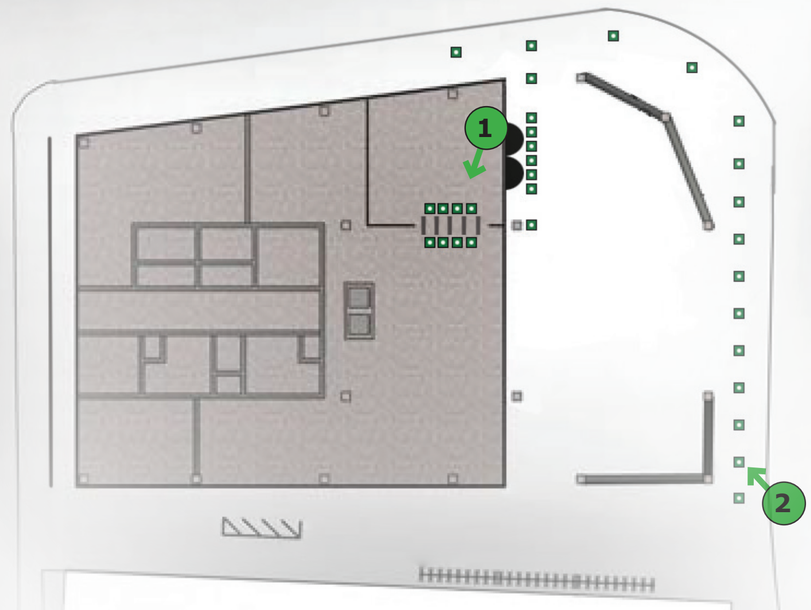


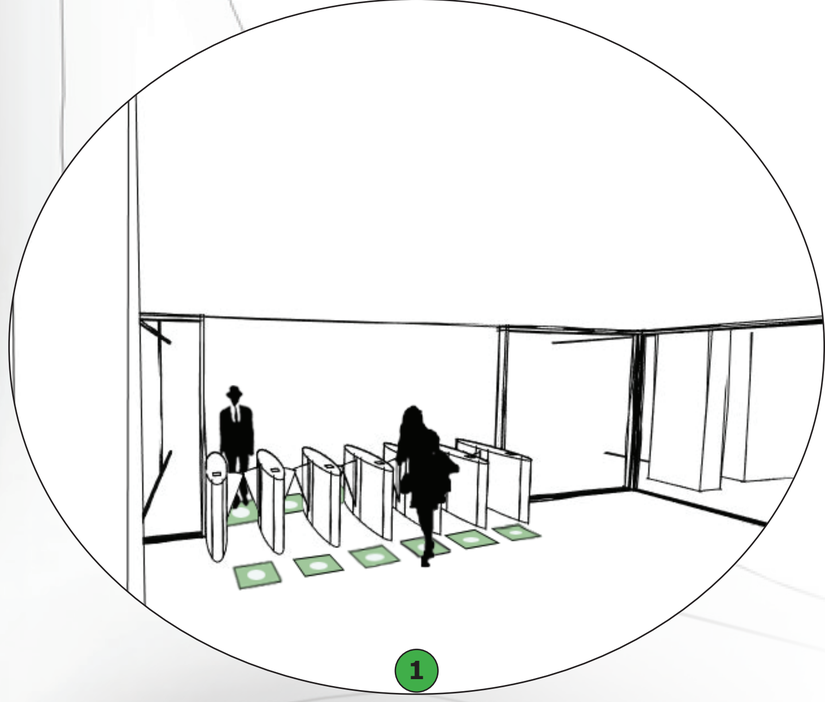
Pavegen are the market leader in the kinetic energy floor harvesting industry. The product the company manufactures allows renewable energy to be generated via human footfall.

Research is currently being undertaken to determine whether the technology could be viable for a project at 32 to 34 Hill Street Birmingham. The products system can be seen in the exploded image to the left:



Further information on Pavegen and previous projects can be found on the companies website. Simply scan the following QR code to be directed to their home page:





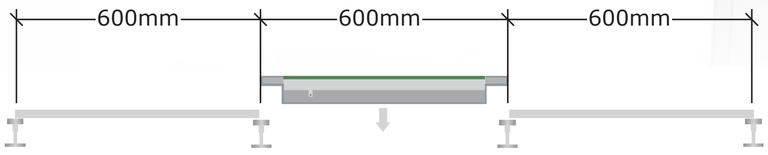
DESIGN INFLUENCES

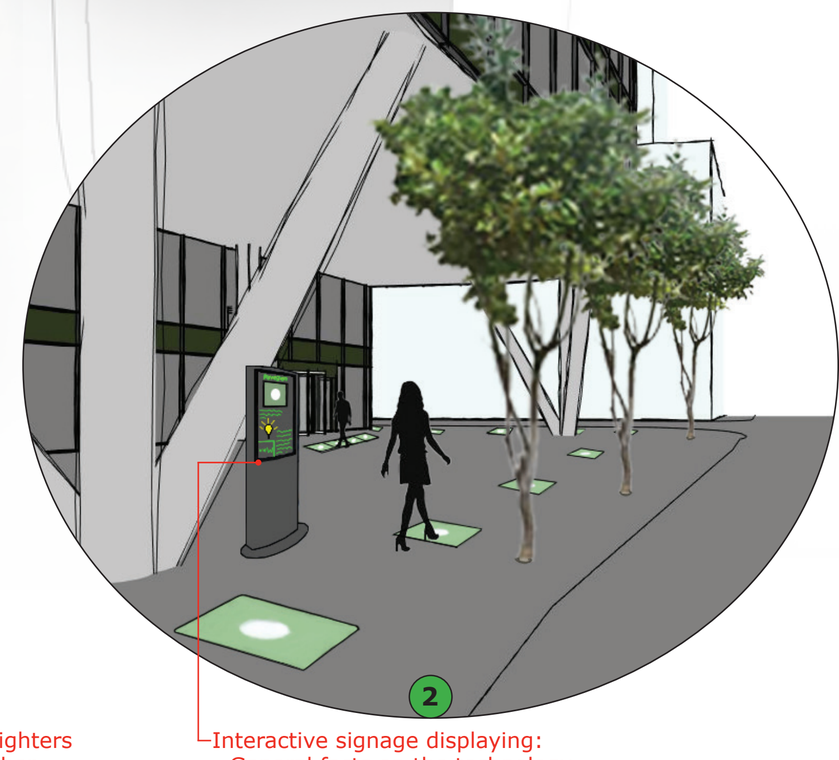
The site plan and the associated images to the right show how Pavegen has informed the design. To maximise energy production, locations of the kinetic energy floor harvesting tiles have been specifically placed within predicted high footfall areas.

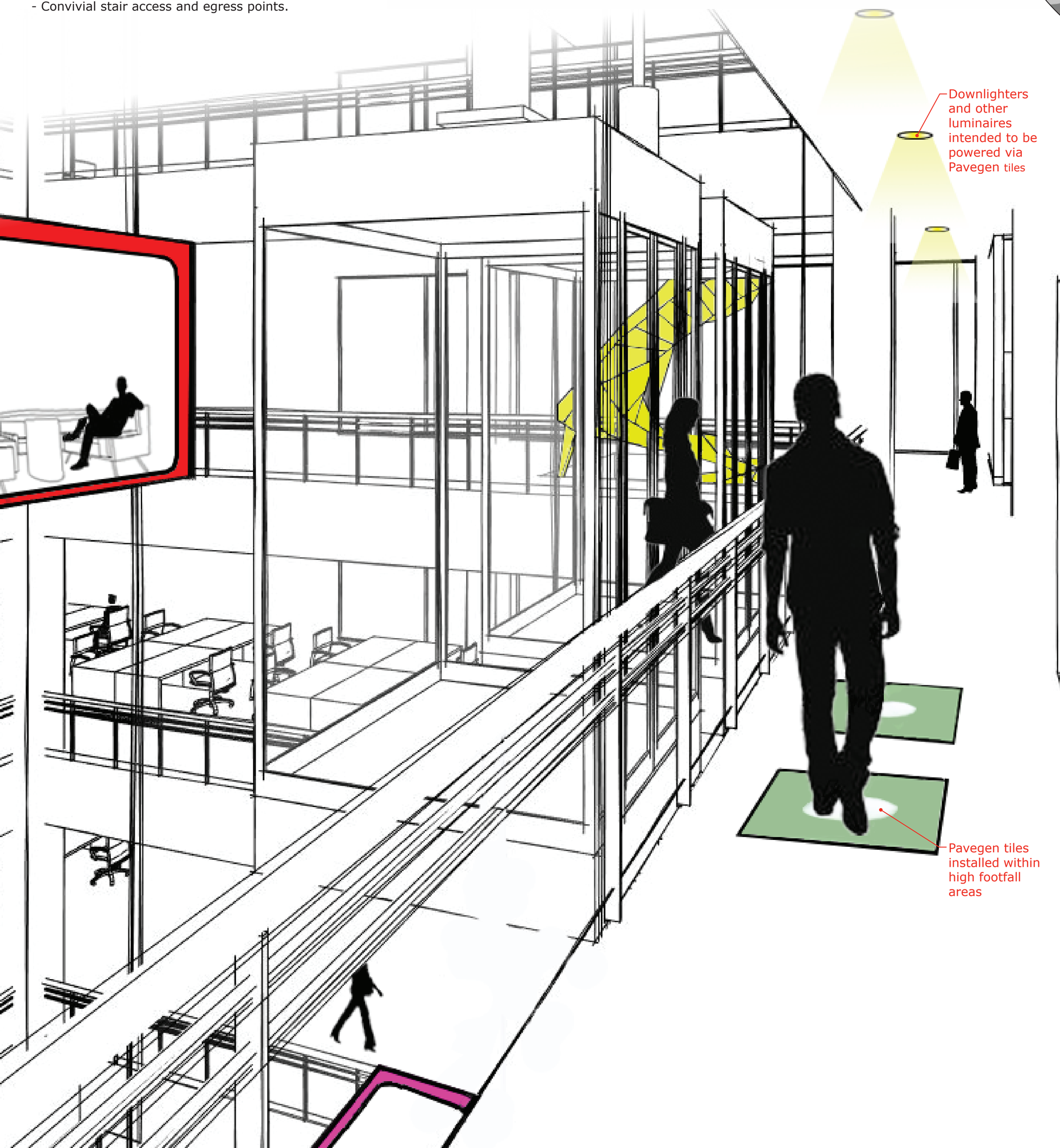
Externally, the tiles will be placed around the perimeter and at the entrance. This is intended to allow the buildings occupants, and the public to use. As a result of this, individual interaction with the technology will be available aiding the promotion of renewable energy within the city.

Internally, the tiles will be placed:
- Lobby - security barriers
- Outside lift shafts and core corridors
- Convivial stair access and egress points.

A 600 x 600mm grid is common for a raised access floor, which Pavegens system is set out to be compatible with (Pavegen, 2015). The design was therefore influenced technically to meet these requirements. This can be visualised below:







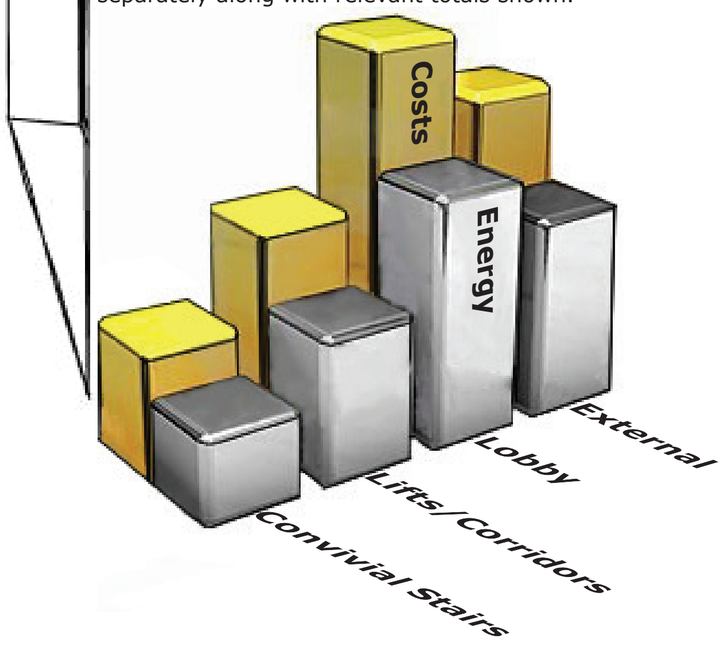
Can the integration of kinetic energy floor harvesting systems contribute to a reduction in energy costs whilst raising awareness of renewable energy?

The research will be undertaken via the use of 'Proplanner Workplace Planner' which is a software plug-in that will allow the investigation to generate real life results.

The software will generate data via the use of a virtual model of 32 to 34 Hill Street, Birmingham. This method will be able to measure the average amount of footfall during a typical working day where the tiles are located. After receiving this data, it will be collated alongside costs to see whether the technology will be beneficial to install within the chosen project, or if the proposed locations of the tiles could be changed and improved.

The bar chart below illustrates how the results will be plotted. Nominal data will be produced due to the tiles being placed within different areas. Each location will therefore generate an independent amount of energy, whilst having separate costs.

The costs will be generated through the amount of tiles proposed for each location, alongside the reduction in energy saving. This will be calculated assuming that 8 watts of energy is produced for every footstep, with the costs of the technology assumed to be at £100 per tile (Fujimoto, 2014). All locations will be calculated separately along with relevant totals shown.



Predictions made after looking at previous research is that the costs of the technology may be higher than the energy produced, therefore never reaching a payback period within the technologies lifetime (Xiaofeng Li, 2014). However recent costs and energy figures will be used, and this will be shown once all required data is collected. The validity of the results may also be indicative due to a variation of footstep counts being made each day, on weekends, and within holiday periods.

TOM CANNON