Fire Engineering Research Topics 2025				
Supervisor(s)	Degree	Preliminary title of research project	Brief description of project	Scholarship per year
Prof RS Walls / Prof John Babafemi	MEng[R] / PhD	Fire resistance of 3D printed concrete incorporating waste plastic	SU has developed both normal 3D printed concrete and 3D printed concrete incorporating waste plastic. Test at elevated temperature such mixes to determine how their material properties change in fire. Also, identify whether the plastic can burn.	Company linked competitive bursary (R70-R110k per year) to be sought. TBC.
Prof RS Walls	MEng[R] / PhD	Fire resistance of sustainable construction products	A variety of sustainable and eco-friendly construction products are now available, often incorporating biomass or waste materials. However, the fire performance of such materials is often not known. Analyse available materials, data in the literature, test methods, and similar info to try propose how these products influence fire behaiour, or will perform in different scenarios.	Company linked competitive bursary to be sought. TBC.
Prof RS Walls	MEng[R] / PhD	Smouldering behaviour of hempcrete	Smoke some hemp in the lab to study how smouldering affects hempcrete. Hempcrete is a mix of hemp and limestone that has good fire resistance properties. However, it has been found to exhibit smouldering behaviour which needs to be quantified to enhance fire safety and reduce risk for hempcrete buildings.	Company linked competitive bursary to be sought. TBC.
Prof RS Walls	MEng[R] / PhD	Fire spread modelling for informal settlements	Develop models for analysing the spread of fire in informal settlements during disasters. Existing models have been developed at SU and these can be enhanced, validated and implemented.	Company linked competitive bursary to be sought. TBC.