Inventing and professional engineer, Geir Jensen has a passion for devising practical solutions to problems. Through collaborations with scientists and the exploitation of opportunities as and when they arise, Jensen has recently brought to fruition an idea first envisioned 20 years ago. From idea to reality, the story of Jensen’s invention is an inspiring example of how far you can get with limited resources, as long as you have sufficient vision and ambition.

CONFLICTING INTERESTS
The challenge of designing buildings to withstand fire is an ongoing issue for the construction industry. In many cases, buildings, in particular their exterior construction, also need to be ventilated to prevent rot and fungus. However, in practical construction, ventilation and fire resistance are contradictory requirements: to ventilate a building you need gaps through which air can freely pass, but these gaps present a major area of weakness in the fire resistance of a building.

This conundrum has for a long time been a major challenge to both research scientists and the construction industry. The question of how to make ventilation gaps fire resistant has, until recently, been deemed too difficult and so generally ignored. Instead, research has focused on the parts of buildings that lend themselves more favourably to fire-resistance measures. As a result, a lot of time and money has been invested in installing fire-resistance technologies in buildings which remain vulnerable to fire (due to the presence of unprotected openings like vents and gaps). In addition, there is a lack of standardised testing in this area, making it difficult for those requiring fire-resistance measures to make informed decisions.

FILLING THE GAP
There currently exists a range of methods for making ventilation gaps fire resistant. Intumescent materials that expand on exposure to flames and hot smoke gases create a seal against the spread of fire. However, these take a few minutes to fully seal, so still allow fire to spread in the critical early stages. An alternative technology, flame arresters, uses the principle of a quenching distance to prevent combustion. However, they have a very short working duration of a few milliseconds up to a few seconds.

Evidently, even a combination of these two technologies would leave a significant time gap during which fire could spread through a building. Fascinated by this challenge, Jensen has spent the last 20 years designing and refining an invention which is set to revolutionise the world of fire resistance.

FROM IDEA TO REALITY
The story of Jensen’s invention begins in 1994, when he observed the construction of the Eidsvoll 1814, the constitutional building of Norway. The building contained many vertical ventilation shafts and Jensen was struck by the potential fire threat posed by these shafts and the lack of methods to prevent fires.
In terms of fire, a few seconds can make all the difference and, ultimately, by providing instant and lasting protection, Jensen’s inventions buy the time to reduce damage and loss. Malleable vent to seal irregular gaps and cracks. The vent can easily be installed by hand and is a fully reversible design, allowing it to be installed and removed without causing a trace. This feature makes it particularly appealing for use in heritage buildings. With a patent application in progress, Jensen’s inventions are continuing to change long standing views on fire protection methods.

Prevention is Key
Clearly, Geir Jensen’s research and inventions are paving the way for a new mode of thinking about fire resistance. His vision, ambition and perseverance have resulted in unique new methods to stop fire from spreading through vents. These effective, affordable and easy-to-install technologies protect not only the structure itself, but also prevent the fire spreading to neighbouring buildings. In terms of fire, a few seconds can make all the difference and, ultimately, by providing instant and lasting protection, Jensen’s inventions are buying the time to reduce damage and loss.