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Engineering
EyobuNjineli
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Prof Richard Walls ~ Civil / Fire Engineering

Demystifying Fire Engineering: How to Prevent the Loss of your Firm, Factory or Farm

Industry Showcase 2026

- **What is fire safety? Where is it in law?**
- **How can I protect my Firm, Farm or Factory?**
- **Emerging risks**
- **Code compliant but fire safe?**

What are your company objectives?

- Minimum business cost?
- Life safety?
- Business continuity?
- Environmental protection?

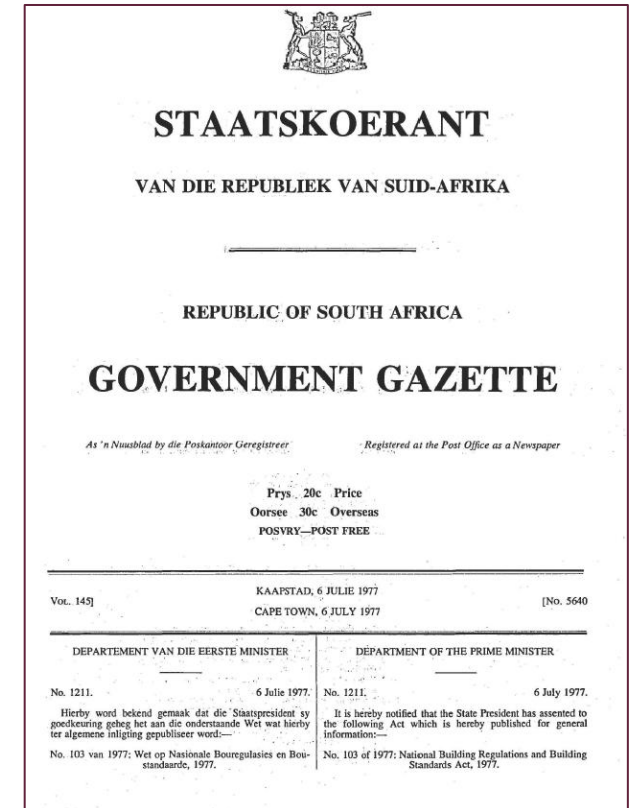


<https://eticaag.com/moss-landing-fire-lessons-for-bess-safety/>

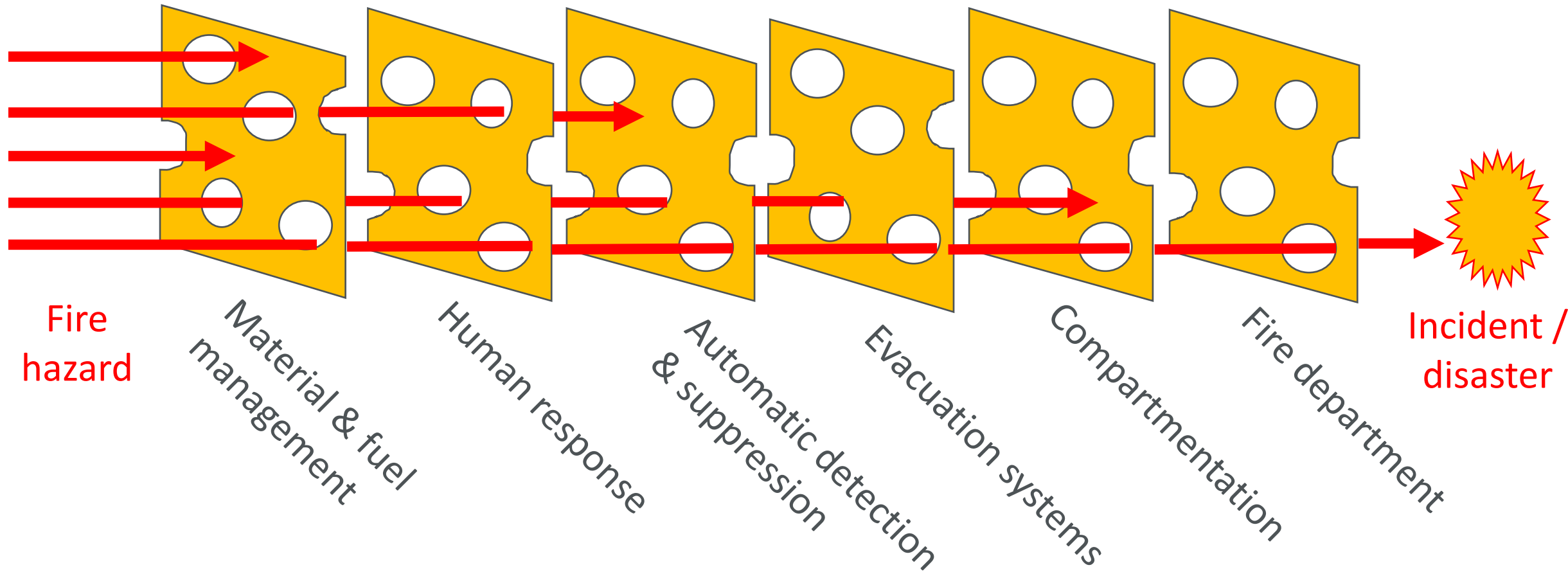


What about the law?

- The Constitution (Act 108 of 1996, Section 24) states that:
Everyone has the right: to an environment that is not harmful to their health or well-being;
- The National Building Regulations (NBR) Act (Act 103 of 1977), states that the aim that buildings must comply:
*... in so far as precautionary measures against fires or other emergencies are concerned, including the **resistance of buildings** against the outbreak and **spreading of fires**, the **protection of the occupants** or users of buildings or other persons against fires, the aids or other installations to be in buildings for the **combating or prevention of fires** and for the **vacating of such buildings** in cases of fires or other emergencies ...*

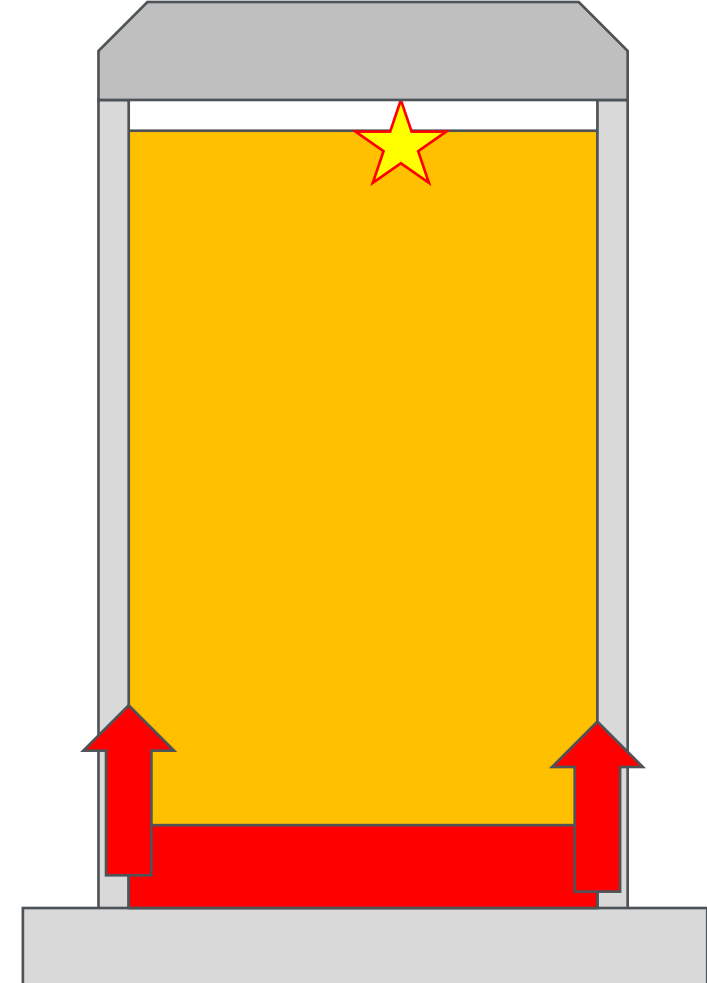


Basics of fire safety engineering

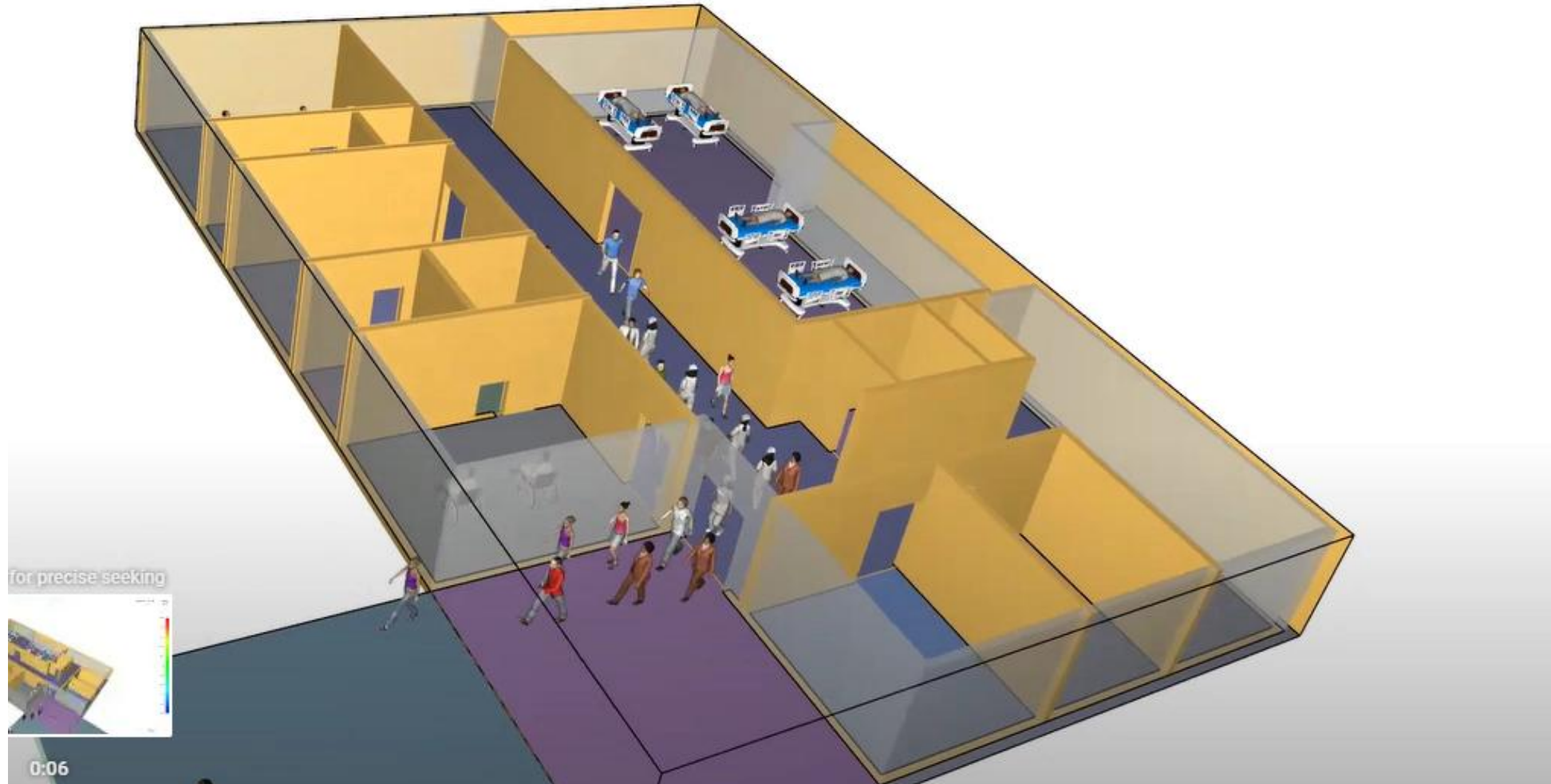


Walk through your company and ask?

- What happens if a fire started here?
- Can people escape?
- How can fire spread?
- How would this affect my organisation?



Can everyone escape?



Emerging risks: Façade fire safety

- **High-rise buildings across SA have combustible aluminium composite materials on them.**
- **We don't know which ones, but they are out there.**



Arson?



www.aol.com



ktla.com

Code compliant but not safe?



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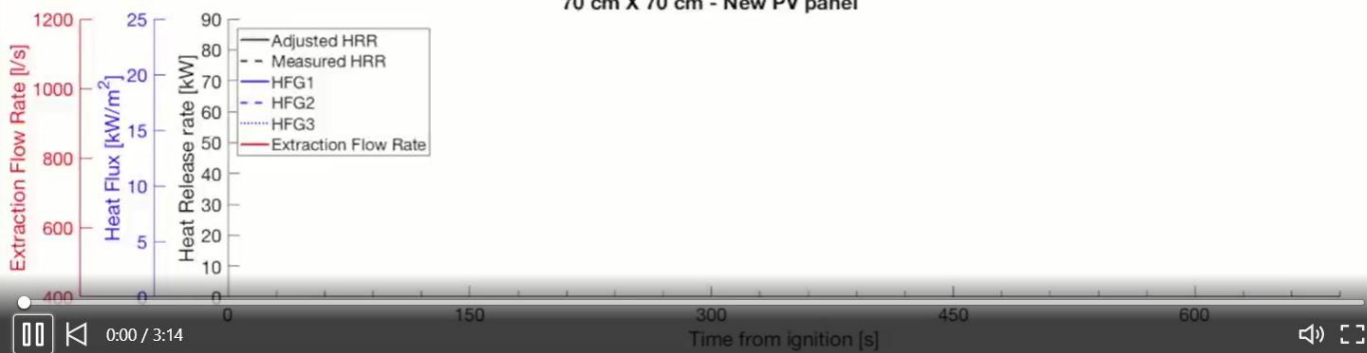


UL FSRI

Code compliant but not safe?



70 cm X 70 cm - New PV panel



Kristensen & Jomaas –
Provided on LinkedIn



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Code compliant but not safe?



<https://youtube.com/shorts/iY6QBTY2EaI?feature=share>

Code compliant but not safe?

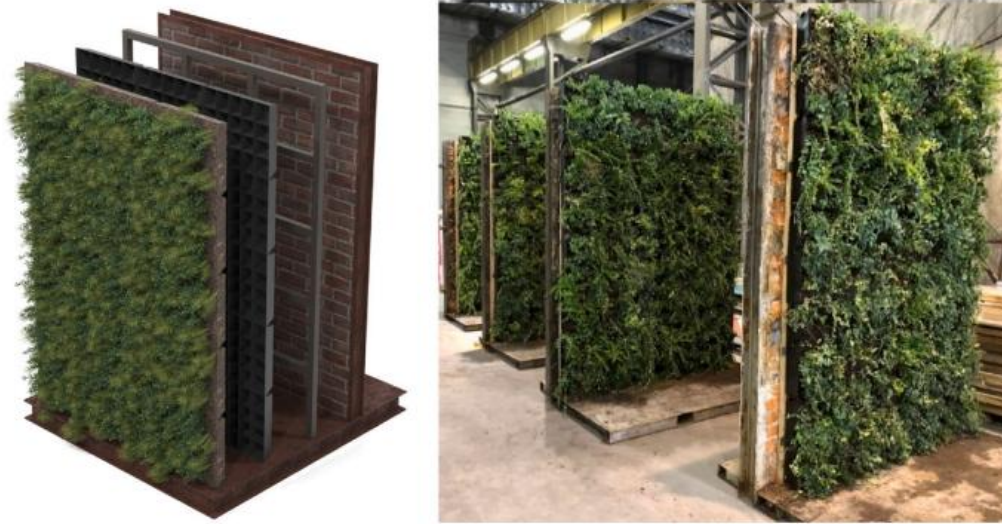


Fig. 1. Modular living wall technology scheme (on the left) and all specimens for full-scale fire spread test (on the right).



AI generated



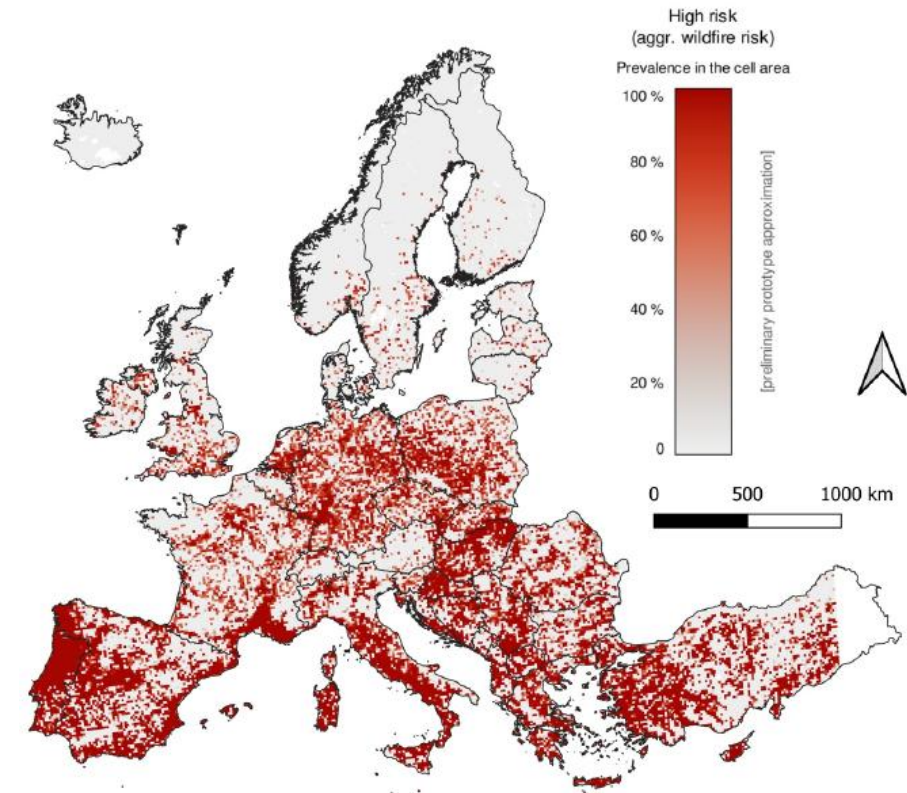
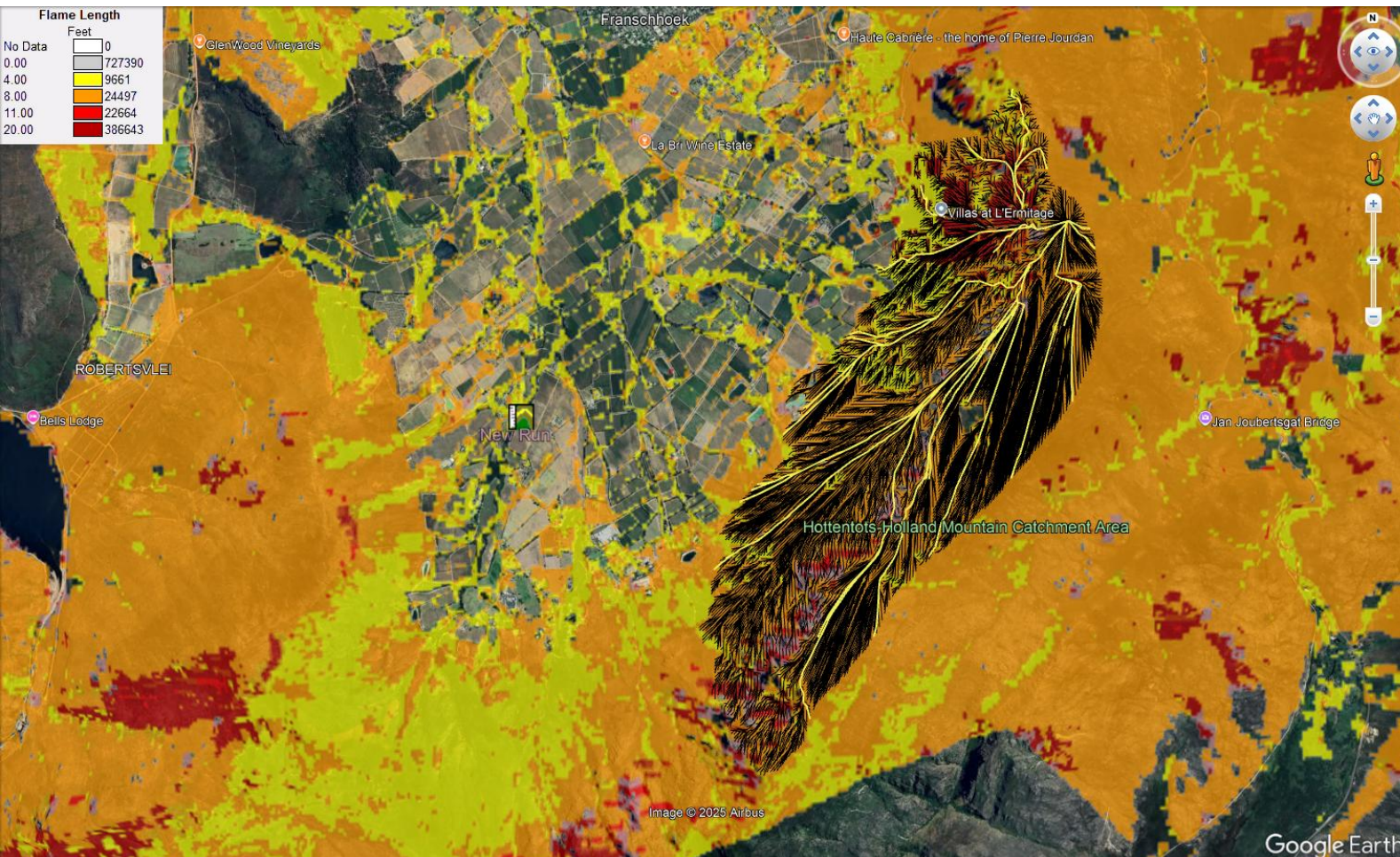
Fig. 10. Time-varying pathway of wind-forced fire spread along LW with live plants. (Bielawski, 2023)

- **Can impact businesses, especially those operating in rural areas.**
- **Large regions can be destroyed.**
- **Much can be done to prepare for wildfires and reduce the impact.**



The Mills Canyon Fire blazes near Leavenworth (Stanford, 2014)

Wildfires



Wildfire spread modelling in Franschhoek – Stephen Fourie (SU)

EU wildfire risk map (Chuvieco, 2023)



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Thank you
Enkosi
Dankie