

# New study reveals more details on deadly flammable cladding used on Grenfell Tower

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Flammable cladding similar to the material which had covered Grenfell Tower is still being widely used across the UK. The combustible cladding used on Grenfell was a significant factor in allowing the rapid spread of a small fire and creating toxic smoke with deadly consequences on June 14, 2017.

A new study led by Professor Richard Hull, who is Professor of Chemistry and Fire Science at the University of Central Lancashire, is a step forward in revealing how deadly cladding materials of this type really are. The research team included Professor Anna Stec, whose study last year revealed that large concentrations of harmful and potentially carcinogenic toxins were and are present in the dust and soil around Grenfell Tower.

Professor Hull's study demonstrates that the specific combination of building materials used at Grenfell had resulted in the highest flammability and smoke toxicity of any products currently available.

According to the research, published in the *Journal of Hazardous Materials*, the polyethylene-filled aluminium composite material (ACM) cladding and polyisocyanurate (PIR) insulation used on the Tower interact in a way that makes the materials far more dangerous together than when they are burnt separately.

Professor Hull's team tested the flammability of ACM panels and PIR foam insulation, which are both widely used across the UK. The cladding caught fire easily, with the heat generated quickly melting the polyethylene contained within it and sending molten drops onto the PIR insulation, which ignited this material in turn. According to the study, this effect is likely to have substantially aided the rapid spread of fire at Grenfell.

PIR insulation is so toxic that burning just 1kg of this material is enough to fill a 50m<sup>3</sup> room with an

"incapacitating and ultimately lethal" combination of carbon monoxide and hydrogen cyanide gas, according to the study. Countless kilograms of this material coated the entirety of Grenfell Tower.

The research notes that in many cases smoke from the burning façade entered the tower block before the fire itself had penetrated inside the building, meaning that the smoke toxicity of these materials was a key factor in the tragic and entirely avoidable deaths of 72 people at Grenfell.

The study showed that ACM cladding is 55 times more flammable than the least flammable panels, with the PIR insulation used behind it at Grenfell Tower giving off smoke that was 15 times more toxic than the less flammable alternatives.

The research also highlighted the dangers of High-Pressure Laminate (HPL) materials, a popular alternative to the ACM cladding used at Grenfell Tower. HPL materials have already been associated with fire fatalities. Window panels using this material were installed at Lakanal House, a tower block in south London where six residents lost their lives in a fire in 2009 and at least another 20 were injured.

HPL cladding releases heat 25 times faster and burns 115 times hotter than non-combustible products, the study found.

While there are currently no official figures available for the number of buildings clad in HPL, the product is thought to be three times as popular as ACM cladding but more commonly used on low-rise buildings, according to online housing publication, *Inside Housing*.

*Inside Housing* revealed last year that HPL cladding had never passed a large-scale fire safety test. According to official government guidance, combustible cladding must be subject to a large-scale

test, known as a British Standard (BS) 8414 test, before being used.

Yet according to a spokesperson for the Building Research Establishment—the privatised former government national building research laboratory and the only UK organisation that conducts BS 8414 tests—“[n]one of the cladding systems that have passed a BS 8414 test include a high-pressure laminate.” But at least one system using HPL cladding has failed a BS 8414 test, insulation company Kingspan revealed.

However, the very minimal government fire-safety programmes introduced since the Grenfell inferno have done nothing to counter the risks posed by HPL cladding. The Building Safety Programme, established by the government in July 2017, has focussed exclusively on ACM cladding and only addressed high-rises above 18 metres.

Speaking to *Inside Housing*, Professor Hull stated, “I think that HPL has been neglected, and shouldn’t have been neglected.

“One would fear that because of all the attention that has gone to the ACM buildings [that] the next disaster is likely to involve HPL rather than ACM—because they haven’t had the fire risk assessments and so on.”

In fact, the scantest attention has been given by the authorities to the real and present danger of ACM cladding on many buildings. The latest figures compiled by the Building Safety Programme for the period up to December 31, 2018 showed that there are 437 high-rise residential buildings and publicly owned buildings in England over 18m in height with ACM cladding systems deemed unlikely to meet current Building Regulations Guidance.

But work to remove and replace dangerous ACM material had only been completed on 15 percent of these buildings, 18 months after the Grenfell fire.

This makes a mockery of the government’s claim to be addressing the problem and why it committed just £400 million for the removal and replacement of this cladding. Even if all the £400 million were spent tomorrow on removing existing ACM cladding this would be woefully inadequate in resolving this massive threat to public safety.

Last month, it was estimated that removing cladding on just five local authority-run tower blocks on the Chalcots estate in Camden, north west London, will cost almost £90 million. The government has only

committed to paying £63.5 million of this amount, with a further £26.2 million having to be raised by the cash-strapped council.

How seriously the Conservative government and Labour Party run council are taking the safety of thousands of Chalcots residents is seen in the fact that the remedial work is not set to be finished until the summer of 2021—fully four years after the Grenfell fire.

A further indication of the ruling elite’s utter disregard for public safety was found in a Freedom of Information Request by *Inside Housing*, which revealed that the government had denied funding to 12 housing blocks clad in ACM because they “didn’t meet the application criteria.”

Three of these buildings were rejected because they were under the arbitrary 18 metre threshold used to define high-rise structures. One of these, a six-storey building, was a mere 64cm “too short.”

The Socialist Equality Party and Grenfell Fire Forum insist that those guilty of social murder at Grenfell Tower must be arrested and charged. We will continue to expose the inquiry and to campaign, along with local residents, to bring out the truth and establish justice for the victims of the Grenfell atrocity.

The Grenfell Fire Forum demands:

- Justice for Grenfell means no cover-up and no inquiry whitewash!
- Arrest the political and corporate criminals responsible!
- Stop the scapegoating of firefighters!
- Quality public housing is a social right!
- For an emergency multi-billion pound programme of public works to build schools, hospitals, public housing and all the infrastructure required in the 21st century!

*For further details visit the Grenfell Fire Forum Facebook page.*



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