Dangerous nanoparticle dust emissions: Warning to DIY enthusiasts, construction workers

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New research published today in the *Journal of Nanoparticle Research* has warned of the dangers to construction workers and DIY enthusiasts of breathing in the harmful particles which are released during building refurbishment works.

Scientists at the University of Surrey found peak concentrations of potentially harmful ultrafine particles reach up to 4000 times local background levels when undertaking building activities such as drilling. Breathing of these particles is linked with serious cardiovascular and respiratory system related diseases, with ultrafine particles penetrating deeper into the lungs.

The researchers also found that the greatest ultrafine particle emissions occurred during wall chasing (cutting grooves into a wall using an electrical tool, for example to lay electrical cables).

Team lead and the corresponding author Dr Prashant Kumar from the University of Surrey said: "There has been an increase in refurbishment work in the UK, with a much greater focus on improving existing buildings rather than constructing new ones. The market for DIY refurbishment is also growing, as people try to add value to their homes rather than move."

"While this focus on renewing rather than replacing is great for

sustainability, it is less positive for those working in and around these sites. With the potential to breathe in harmful dust particles including silicon, copper and aluminum, our research shows that we need more regulatory guidelines, not only to protect construction workers, but also to protect the general public.

"In the meantime, construction workers and those undertaking their own building projects, should always err on the side of caution and wear face masks when undertaking activities that could throw out dust. Some of the most harmful particles are invisible and we shouldn't underestimate the effect on our health, and on the health of those around us."

In another recent study, the team also found that ultrafine particles from building work travel for longer distances than those their larger-sized counterparts, resulting in exposure to on-site workers and personal exposure to passers-by and occupants of nearby buildings. They found that water sprays worked well to suppress the dust released.

Provided by University of Surrey