Exposure to moulds during building renovation work

Problem

Damp in buildings generally leads to fungal growth on the affected surfaces. The surfaces can be treated in different ways. Traditional approaches to the treatment of such mould damage, such as the chiselling off of plaster, may result in large quantities of dust and fungal spores being released. Under sustained or particularly frequent exposure, these may impact negatively upon the workers’ health.

Activities

In order for the magnitude of this exposure to be estimated and recommendations to be made for the selection of protective measures for practical application, studies were conducted over several years at a number of sites in a measurement programme launched by BG BAU, the German Social Accident Insurance Institution for the building trade. Concentrations of moulds and dust were measured during typical redevelopment work such as the removal of wall material or mouldy construction materials, and various measures for emissions reduction tested for their efficacy.

The following equipment was compared for its effectiveness in reducing the release of dust and fungal spores during the conventional use of the chisel method:

- Wet or damp processes, such as water extraction methods

- Enclosed or shrouded machines (employing splash plates or brush sweeps as splash protection)

- Tools equipped with dust collection

In addition, the reduction in exposure attained by dust collection equipment in the room and by engineered ventilation measures was studied.

Organizational measures which may contribute to a reduction in emissions include:

- Performance of dusty work at different times or locations to other tasks

- Storage and disposal of dust-raising materials and equipment under conditions not conducive to dust raising
The measurements were conducted at the workplace in accordance with the standard methods for mould and dust concentration measurement, involving both personal measurement and stationary measurement in the working area.

**Results and Application**

The results confirm, on the one hand, the effectiveness of the protective measures recommended in the guide to health hazards caused by biological agents during building renovation work (BGI 858). At the same time, it became clear that of the possible engineered measures, the wet processes in particular – such as high-pressure water extraction or equipping of the machines with dust collection facilities and additional spray protection – effectively reduced the emissions of dust and fungal spores during the tasks studied. Supplementary ventilation measures proved effective, particularly where initial concentrations were very high.

Conversely, in cases where the material being removed exhibited high mould concentrations, organizational measures such as the performance of particularly dust-intensive tasks at different times and/or locations from other tasks and disposal of mould-infested construction materials in a manner which does not raise dust were substantially less effective than the engineered measures studied.

**Area of Application**

Trade businesses conducting the work, assessors, trade associations, other interested parties

**Additional Information**

- Gesundheitsgefährdungen durch biologische Arbeitsstoffe bei der Gebäudesanierung – Handlungsanleitung zur Gefährdungsbeurteilung nach Biostoffverordnung (BiostoffV) (BGI 858, 10.06). Published by: Berufsgenossenschaft der Bauwirtschaft (BG BAU), Berlin 2006

**Expert Assistance**

IFA, Division 2: Chemical and biological hazards
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**Literature Requests**

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