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Institut für Arbeitsschutz der
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Focus on IFA's work

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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

Removal of mouldy wall material

- 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

- Verfahren zur Bestimmung der Schimmelpilzkonzentration in der Luft am Arbeitsplatz (document code 9420), 30. Lfg. – IV/2003. Geräte zur Probenahme der einatembaren Staubfraktion (E-Staub) (document code 3010), 27. Lfg. – X/2001. Geräte zur Probenahme der alveolengängigen Staubfraktion (A-Staub) (document code 3020), Vol. 21 – X/1998. In: BGIA-Arbeitsmappe Messung von Gefahrstoffen. Published by: Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA), Sankt Augustin. Erich Schmidt, Berlin 1989 – loose-leaf
  www.bgia-arbeitsmappedigital.de

Expert Assistance

IFA, Division 2: Chemical and biological hazards

BG BAU, BG Expert Committee Construction, Biological hazards area

Literature Requests

IFA, Zentralbereich

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