

Focus on BIA's work

Berufsgenossenschaftliches Institut für Arbeitsschutz

No.: 0053 Noise exposure at construction site workplaces

○ Problem

Working methods, machinery and equipment are employed on construction sites which accelerate the progress of work and reduce the physical effort required. At the same time, however, they frequently cause high noise exposure. Discrete peak values and daily exposure to noise with an average sound level of 85 dB(A) or more over a period of several years are equally hazardous to the human hearing. Since noise at construction site workplaces frequently varies as a function of both location and time, typical time-averaged sound levels are difficult to determine. In the interests of employee safety, however, it is important to identify the activities during which noise posing a hazard to the hearing occurs. The Institution for Statutory Accident Insurance and Prevention in the Civil Engineering Sector and the other Institutions for Statutory Accident Insurance and Prevention (BGs) in the Building Trade are therefore conducting the "Noise exposure at construction site workplaces" research project in conjunction with the BIA.



Illustration
Sound level measurement at a steelfixer's workplace

○ Activities

In order to record the frequently changing noise levels at workplaces in the construction sector, the BIA has developed a method based upon person-related determination of the noise exposure. The typical noise value recorded for a certain constellation of activities (occupation) is termed the rating level.

○ Results and Application

The rating level of an occupation is an indicator of the level of noise to which employees pursuing the occupation concerned are exposed. The results form an important basis for measures for the protection of employees: machinery and equipment which once generated substantial noise is now designed for low noise

generation, and more suitable hearing protectors can be selected. A total of 1,000 daily rating levels were measured in the course of the project. When these data have been evaluated, approximately 40 occupation-specific rating levels will be available.

○ **Area of Application**

All companies in the construction sector; key areas: smitheries, composition floor layers, rail track layers, heating and sanitary fitters, trenchers, plumbers, corrosion technicians, plastering machine operators, natural stone and concrete stone workers (masons), plasterers and tilers, special foundation workers, road construction workers (preparatory work for road surface construction, black top finishers, concrete paving installers, road markers, crash barrier fitters), highway maintenance departments, dry construction fitters, carpenters, and companies with employees in the following occupations: construction workers, concrete workers, formwork setters, steelfixers, crane operators and bricklayers

○ **Additional Information**

- Maue, J.H.: Lärmbelastung an Baustellenarbeitsplätzen, Parts I and II, Einwirkung auf Maurer, Einschaler, Eisenflechter, Betonierer, Zimmerleute und Heizungs- und Sanitärinstallateure. BIA-Report 1/87.
- see above: Part III, Einwirkung auf Kanalbauer, Maschinenputzer und Trockenbauer. BIA-Report 1/89.
- Knipfer, C.; Pfeiffer, B.H.: Lärmbelastung an Baustellenarbeitsplätzen, Part IV, Einwirkung auf Gerüstbauer, Dachdecker und Fassadenbauer. BIA-Report 1/90.
- Knipfer, C.; Funke, H.-W.: Lärmbelastung an Baustellenarbeitsplätzen, Part V, Einwirkung auf Gleisbauer, Bauschlosser, Straßenbauer (Vorbereitungsarbeiten für den Straßendeckenbau, Schwarzdeckenbauer, Betondeckenbauer, Straßenmarkierer, Leitplanckenbauer), Spezialtiefbauer und Korrosionsschützer. BIA-Report 2/97.

Reports 1/87, 1/89 and 1/90: Published by: Berufsgenossenschaftliches Institut für Arbeitsschutz – BIA, Sankt Augustin 1987, 1989, 1997

Report 2/97: Published by: Hauptverband der gewerblichen Berufsgenossenschaften (HVBG), Sankt Augustin 1997

- Knipfer, C.: Ermittlung der berufstypischen Lärmbelastung in der Bauindustrie. Sicherheitstechnisches Informations- und Arbeitsblatt 210 270. In: BIA-Handbuch Sicherheit und Gesundheitsschutz am Arbeitsplatz. Suppl. 42, XII/02. Published by: Berufsgenossenschaftliches Institut für Arbeitsschutz – BIA. Erich Schmidt, Bielefeld 1985 – loose-leaf

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○ **“Focus on BIA's Work“**

Published by:

Berufsgenossenschaftliches Institut für Arbeitsschutz – BIA
im Hauptverband der gewerblichen Berufsgenossenschaften – HVBG
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