

Applying technology to construction jobsite back-up alarms

Back-up alarms are, to say the least, a controversial issue at construction jobsites. Not only are they hard to hear by workers because of the surrounding noise and they sometimes drive the neighbors crazy.

Question: The repetitive, piercing beeping noise emitted from back-up alarms on excavating equipment at a construction site is stressful to residents who live nearby. Other methods of alerting or warning employees have become available in recent years. Do OSHA back-up alarm requirements allow for the use of methods that would be less noise-intrusive to nearby residents?

Answer: Yes. Two OSHA requirements relate to back-up alarms in construction.

Motor vehicles - General requirements

- No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:
- The vehicle has a reverse signal alarm audible above the surrounding noise level or,
- The vehicle is backed up only when an observer signals that it is safe to do so.

Material handling equipment - Earthmoving equipment; General - Audible alarms

No employer shall permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employee signals that it is safe to do so.

The technology component

The OSHA standards were established because of the pervasive construction hazard of being struck by construction vehicles. Recent OSHA data underlines the importance of protecting against this hazard. OSHA'S has investigated many fatal accidents in which a worker was struck by a construction vehicle that was backing up without an operable alarm.

However, the rules by their terms give employers flexibility beyond the use of alarms - both provisions permit the use of an observer/signal person instead.

In addition, the standard may be met by use of more technically advanced devices than the common single (high-pitch) tone alarm. Recently, OSHA stated that a reverse alarm manufactured in the United Kingdom that uses "white noise" instead of a single-tone alarm could be used to meet these requirements. OSHA also stated that the regulations allow for the use of such devices if they are shown to be effective.

These provisions, by their terms, do not specify that a reverse signal alarm be of the single-tone type. However, OSHA has neither the data nor the resources to evaluate whether this particular device would be "audible above the surrounding noise level" as required by the standard. If it does meet this test—that is,

provides adequate warning to workers in the path of the vehicle, and to workers walking towards the path of the vehicle in time to avoid contact - it would comply. In the current OSHA rulemaking effort regarding jobsite hearing conservation, the requirement for hearing protection versus jobsite noise is a big factor in the process.

The issue is: Will the wearing of hearing protection make it even harder for employees to hear the backup alarms and engine noises that warn them of heavy equipment nearby?

The Mine Safety and Health Administration is promoting the installation of video cameras on their equipment. Some of the larger equipment can easily crush a standard vehicle.