

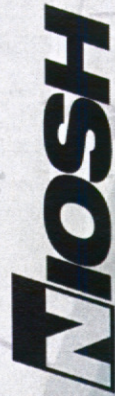
NORA Construction Sector Perspectives on “Buy Quiet”

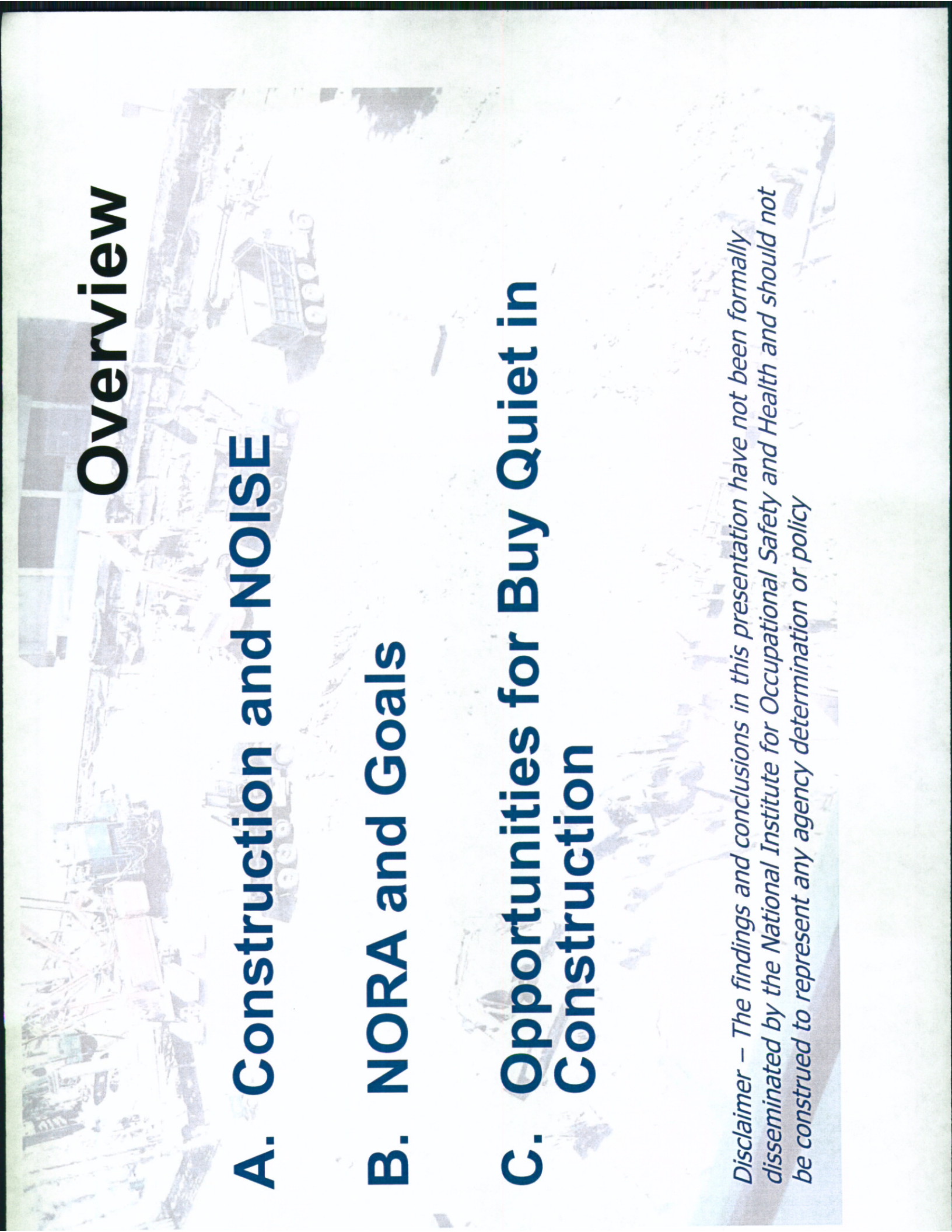
Matt Gillen
Deputy Director, NIOSH Office of
Construction Safety and Health

NIOSH Buy Quiet Workshop
11.09.11



Workplace
Safety and Health





Overview

A. Construction and NOISE

B. NORA and Goals

C. Opportunities for Buy Quiet in Construction

Disclaimer – The findings and conclusions in this presentation have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any agency determination or policy

A) Construction and NOISE

- Major construction OSH focus is safety.....
given high burden of fatalities and serious injuries.
- **CHALLENGE:** Health hazards get less attention.
 - Noise (and dust) viewed as normal part of construction
 - Low awareness and expertise
 - Chronic health effects → no feedback loop for employers to easily notice (vs. injury)



- **CHALLENGE:** Lack of US noise regulation

- Construction not covered by the 1983 OSHA Hearing Conservation Standard
- Affects how issue is perceived by contractors
- No hearing test results to raise awareness of workers or contractors

- **NOTE:** Voluntary 2007 standard

ANSI A10.46: Hearing Loss Prevention in Construction and Demolition Workers

Body of Knowledge

- Many NIOSH and other research studies showing:
 - High noise levels for various tasks and trades
 - Hearing loss among many construction trades
 - Examples of noise solutions and controls

- Existing R2P products for industry use

- Impact noise as research gap



Ironworkers



Laborers



Masonry
Restoration
Workers

U Washington booklet series

B) NORA and Goals

(National Occupational Research Agenda)

- 2006-2016
- Industry stakeholders identified “top problems”
→ converted into national goals with performance measures
- Intent:
 - Steer researchers to NORA topics
 - Partner with practitioners on most important issues

NORA Sector rationale?

- ✓ Research increasingly being judged by **impact**
- ✓ Moving **research into practice** through partnerships is key to making an impact
- ✓ Industry and employee group partners are organized by sector
- ✓ Many solutions are sector-based



NORA National Construction Agenda

15 Strategic goals addressing top construction problems

Strategic goals (SG) → desired worker and contractor
end outcomes

Intermediate goals (IG) → intermediate steps needed to
influence workers/contractors

Research/R2P goals
(RG or R2PG) → research and actions to support
intermediate goals



NATIONAL OCCUPATIONAL RESEARCH
AGENDA (NORA)

1/18/08 DRAFT PRELIMINARY PUBLIC COMMENT VERSION
(This update corrects minor numbering errors in the original 12/26/07 version)

NATIONAL CONSTRUCTION AGENDA

FOR OCCUPATIONAL SAFETY AND HEALTH
RESEARCH AND PRACTICE IN THE U.S.
CONSTRUCTION SECTOR

Developed by the NORA Construction Sector Council

Strategic Goal 4

Reduce hearing loss among construction workers by increased use of noise reduction solutions, practices, and hearing conservation programs in the construction community

Performance Measure: A PM cannot be set for this SG until better baseline information can be obtained and analyzed.

One of 3 NORA health goals

Intermediate Goals

- **IG 4.1** - Develop a baseline on current noise control and hearing loss practices in construction.
- **IG 4.2** – Increase awareness about noise hazards and solutions among workers, contractors, owners, and suppliers.
- **IG 4.3** – Increase the availability and adoption of quieter tools and equipment in the construction industry via research and implementation of a “Buy Quiet” campaign.
- **IG 4.4** – Develop and promote the use of model programs and practices by construction owners, governmental groups, professional groups, and best practice employers.



Buy Quiet Subgoals

4.3.1 – Develop a researcher/tool manufacturer partnership to improve engineering knowledge of noise reduction options and design approaches for construction power tools and equipment -- leading to an increase in the number of commercially available tools and equipment with noise reduction features.

4.3.2 – Support research to develop methods to improve the measurement and understanding of **impact noise** in construction. Partner with field researchers and safety and health professionals to use these improved methods to further characterize impact noise in construction settings.

Buy Quiet subgoals

4.3.3 – Develop, evaluate, maintain, and promote methods to collect tool and equipment manufacturing data by quiet technology characteristics to facilitate “Buy Quiet” efforts by construction tool users. Examples might include expanding the use of equipments noise labels, and the inclusion of noise requirements in project specifications.

4.3.4 – Analyze market barriers and opportunities and develop, evaluate, and publicize a “Buy Quiet” Construction Campaign using social marketing techniques to increase the availability, adoption and use of quieter construction tools and techniques.

Interest/comments on Buy Quiet Goals

- Much interest in Chuck Hayden's project
- Presentation to ACCSH Health workgroup:
Discussion: What comes first: Buy Quiet or Sell Quiet?
- AIHA Construction Committee Buy Quiet workgroup
- BQ scope: Be sure to include larger machines not just tools

C) Opportunities for Buy Quiet

1) Can build upon construction safety framework

- Pre-job planning → Equipment considerations
- Job Hazard Analyses → Evaluation of tasks and defining precautions
- Hazard-specific competent persons → On site person with knowledge and authority


2) Community noise strategies

A GUIDE TO NEW YORK CITY'S NOISE CODE

UNDERSTANDING THE MOST COMMON SOURCES OF NOISE IN THE CITY



NYC
Environmental
Protection
Department of Environmental Protection
Carol A. Browner, L. Commissioner



Test Version
November 4, 2011

MONTGOMERY COUNTY MARYLAND

montgomerycountymd.gov

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Department of Environmental Protection

Construction and Noise

As a construction worker, contractor, or engineer, you should be aware of how your activities are regulated under the Montgomery County Noise Control Ordinance. With careful planning and operation, it's possible to minimize potential noise disturbances from construction activities.

Construction Noise Basics

Virtually all potential noise sources that operate permanently or semi-permanently can be designed or controlled to meet the receiving property line standard. Likewise, potential sources under human control, such as electronically amplified sound, can be designed to meet the ordinance requirements.

Noise from some construction activities, however, is difficult, if not impossible, to control to the receiving property line. This is because the engineering design and technical controls that are effective on permanent stationary sources aren't practical or reasonable for a temporary, often mobile, noise source or combination of sources. The Noise Control Ordinance therefore, contains certain standards specific to construction noise. DEP has several tools available to help mitigate and regulate this potential source of disturbance.

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Quick Links

On this page

- Construction Noise Basics
- Exemptions and Standards
- Noise Suppression Plan
- Temporary Noise Waiver
- [Active Noise Control Ordinance](#)
- Tracked Equipment
- Tool for Construction Site Managers
- Calculated Sound Intensity

Related Links

- Noise Control Ordinance
- Noise Control in Montgomery County

Get Help

- Download a Temporary Noise Waiver Form (PDF)
- Use this form to apply for a temporary noise waiver to allow after-hours and nighttime construction projects
- Questions about construction

West Wing Disappears Behind Noisy

Construction Job 04/04/2011 Associated Press/AP Online

West Wing officials, especially those with offices nearest the construction, have endured painful spells of drilling and banging. Holding meetings and doing routine business amid the din has become a major challenge.....

For example, Josh Earnest, a deputy in the press office, found himself doing phone interviews on President Barack Obama's State of the Union speech as a worker jackhammered concrete inches from his window. The next day, when a second jackhammer arrived, he phoned project managers to beg for a reprieve. The work was postponed....

Community construction noise example

Construction Noise Control Products and Vendor Guidance Sheet

23 March 2007

Distributed by:
New York City Department
Of Environmental Protection

The following is intended to provide guidance to construction contractors with respect to finding and selecting suitable noise control products. These products and vendors may be helpful to contractors for achieving compliance with the New York City Noise Regulations. These items are provided only as suggestions for contractors to consider and should not be construed as an official endorsement of any product and/or vendor by the City of New York. Contractors are free to choose other products/vendors that meet the requirements of such Code. This sheet will be updated from time to time as new noise control technologies gain acceptance.

BACKUP ALARMS

- Preco Electronics www.presco.com
- Ecco Group www.eccolink.com
- Grote Industries www.grote.com
- Brigade Electronics www.bbs-tek.com

JACKHAMMERS

- Better World www.bwametwork.com
- Atlas Copco www.atlascopco.com
- Chicago Pneumatic www.cp.com
- Makita www.makita.com

VACUUM EXCAVATORS (VAC-TRUCKS)

- Guzzler www.guzzler.com
- GapVax www.gapvax.com

NOISE BARRIERS

- Carsonite www.carsonite.com
- Sound Fighter www.soundfighter.com
- Kinetics www.kineticsnoise.com
- one inch plywood is rated at 30 STC.

NOISE CURTAINS

- Sound Seal www.soundseal.com
- Illbruck Acoustic www.illbruck-sonex.com
- McGill AirSilence www.mcgillairsilence.com

SILENCERS & MUFFLERS

- Universal Silencers www.universal-silencer.com
- Burgess Manning www.burgessmanning.com



Quieter vibratory pile driver
installing steel channel sheets in NYC.

3) Green rating systems


Major influence on
building practices

No current noise credits....

....but acoustic credits for
schools and hospitals.

LEED 2009 FOR
NEW
CONSTRUCTION
& MAJOR RENOVATIONS

For Public Use and Display
LEED 2009 for New Construction and
Major Renovations Rating System
USGBC Member Approved November 2008 (Updated July 2010)



USGBC LEED®
*(Leadership in Energy
and Environmental Design)*

NORA Construction Council focus

- ✓ NIOSH Meetings with USGBC
- ✓ Integrating OSH language into 6 existing credits presenting potential hazards

NORA interest in developing additional
“**stand alone**” OSH pilot credits, including for
construction noise

4) Green labels and environmentally preferable purchasing

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Europe (47)

Latin America (26)

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Standard is available onl

Number of standards

Standards in developmer

Standards under revisio

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ecolabels

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+ Compare

roduced from wind, PV,

tidal & waves, biogas

Refine Ecolabel Index to find the ecolabels relevant to you.

Side-by-side, which ecolabels meet your specs?

What can OSH professionals learn from Ecolabel Strategies?

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Tweets

RT @FairtradeAfrica: Climate change threatens the livelihoods of Fairtrade tea farmers <http://t.co/KC4JMSGod>

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News

Dolphin Safe Ecolabel Deemed Illegal by WTO

[Ecolabel Profile Update Service Full Release](#)

[EPA Introduces Greener Products Portal](#)

Press coverage

USA Today | [ETC to issue new green guidelines, address lawsuit of marketing claims](#)

[TropicPundit | Is It Greenwashing Or Too Many Eco-Labels That Is The Problem?](#)

[The Guardian \(UK\) | Questioning and Evolving the Eco-Label](#)

[More mentions...](#)

The New York Times the guardian

FASTCOMPANY THE WALL STREET JOURNAL

1. MATERIALS HAZARD FACTORS

Human Health Hazards

Acute/Chronic
Carcinogenic
Immunologic
Sensitizer
Neurotoxic
Reproductive
Irritant

Ecologic Hazards

Aquatic—Avian—Terrestrial Species

Product Hazards

Corrosivity, Flammability, Reactivity

2. HUMAN HEALTH & ECOLOGICAL STRESSORS

2. HUMAN HEALTH & ECOLOGICAL STRESSORS

Bioaccumulative
Ozone Depleting
Chemical Releases (TRI)
Air Releases (VOCs)
Global Warming Gases

Environmentally Preferable Products (EPPS)

We need to get NOISE added

BQ needs to be integrated into Environmentally Preferable Purchasing attributes!

4. NATURAL RESOURCES USE

Ecosystem Impact
Energy Consumption
Water Consumption
Resource Consumption
Non-renewable
Renewable
Rapidly Renewable

3. POSITIVE ATTRIBUTES Lifecycle Stages

Recyclability
Reusability
Durability

From: Federal Register, Vol. 60, No. 189, Appendix B1

What is the status of 42 U.S.C. § 4914 : US Code - Section 4914: Development of low-noise-emission products?

5) Better equipment information?



HILTI

Health and safety guide

Your preferred partner for productivity and safety.

Hilti. Outperform. Outlast.



Noise

Noise is part of everyday life, but excessive and prolonged exposure to loud noise can permanently damage your hearing. Once you lose your hearing, you will never recover it. A European directive has been issued to protect workers from exposure to excessive noise.

The Physical Agents (Noise) Directive 2003/10/EC

The deadline for adoption of the directive in national labor protection laws was February 15, 2005. This directive is intended to protect workers from the effects noise has on the health. It uses various values to quantify noise.

Sound pressure levels: Pressure on the worker's ears generated by the noise by the tool

Sound power levels: Total noise emitted of the C-frequency-weighted instantaneous noise pressure

When using electric tools, the **sound pressure level** and the **peak sound pressure** are relevant for the risk assessment. The noise exposure level is calculated on the basis of the sound pressure level of the tools used and standardized

to an 8-hour working day. The peak sound pressure (P_{max}) is relevant for high-level intermittent noise (e.g. beating on sheet metal with a hammer). A certain level must not be exceeded.

Daily noise exposure	Noise exposure range	Action required by the employer
L _{eq,A} ≤ 85 dB(A) or P _{tr,A} ≤ 140 pa, respectively	Between the lower and upper exposure action value	The employer shall make individual hearing protection available to workers. The employer shall be duly advised by a doctor.
L _{eq,A} ≤ 85 dB(A) or P _{tr,A} ≤ 140 pa, respectively	Above the upper exposure action value	Individual hearing protection shall be used by workers. Workers are entitled to medical surveillance. Reduce exposure to noise.
L _{eq,A} ≤ 87 dB(A) or P _{tr,A} ≤ 200 pa, respectively*	Above the exposure limit value	Take immediate action to reduce exposure to noise.

* Exposure at the workers ear when using ear protection

Possible measures to reduce noise exposures are changes in the work organization, the use of tools with lower noise values or the use of alternative methods.

For more information on the directive check <http://europa.eu> or ask your local Hilti representative.

Noise info
provided

EU focus

Still a long way to go




HILTI

Choose your method.
For optimum safety on every job.

Hilti can suggest alternative methods for almost every individual application! Ask us for further information about the various methods Hilti offers to suit your needs. Your local Hilti representative will be pleased to provide competent on-the-spot advice and assistance. Further information about alternative methods can also be found at www.hilti.com.





Building construction: rebar | doweling

Drilling small anchor holes for rebar fastening < 18 mm
Diamond drilling & chemical anchors

		
DO EC-1	TE 50-AIR	TE 40-AIR
Drilling diameter: 18 mm (100 mm deep)	Drilling diameter: 18 mm (100 mm deep)	Drilling diameter: 18 mm (100 mm deep)
Vibration: 100	67	67
Noise: 71 dB(A)	68 dB(A)	68 dB(A)
Dust: Water	TE DRS-S	TE DRS-S
Other advantages:	• AFR system • High universality • Well known to workers	

Interior finishing: drywall

Fastening drywall track to concrete
DX direct fastening

			
DX 120	DX 351	TE 2 (02)	TE 2-A
Vibration: 3200	800 - 2100*	102	119
Noise: 14.000	3200 - 8400*	648	816
Dust: Virtually no dust emission from base material	69 dB(A)**	78 dB(A)	77 dB(A)
Other advantages:	• Cordless • Low structure borne noise • DX 351 pole extension for ceiling • High working speed	TE DRS-S	TE DRS-S
		• Cordless available • Universal method • Well known to workers	

* Depending on settings used | ** 8000 bearings per day

Closing thoughts – 3 approaches for providing Construction BQ info

Approach	Value	Developmental work needed
Label	Easiest for contractors to use! Least amount of searching	Needs the most infrastructure
Product literature or website	Contractors already look to vendors for info... so next easiest for contractors to use	Needs infrastructure
Dedicated website for tool/equipment noise	Contractors need to know it exists and it has to be easy for them to use	Challenging, but easiest to accomplish...can be used as base for others above



For more information

NORA National Construction Agenda

PDF version

<http://www.cdc.gov/niosh/NORA/comment/agendas/construction/pdfs/ConstOct2008.pdf>

Interactive version

<http://www.cdc.gov/niosh/programs/const/noragoals/>

NORA Construction webpage

<http://www.cdc.gov/niosh/construction/>

eLCOSH (Electronic Library of Construction Safety and Health)

<http://www.cdc.gov/niosh/elcosh.html>



Thanks!

Questions?

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