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Decibel Levels Associated with Select Sounds

Decibel (dB)	Source
130-150	Jet engine at takeoff, amplified music * Direct damage can occur
120-140	Gunshot, siren at 100 feet * Threshold of pain
110-120	Chainsaw, jackhammer, snowmobile, rock concert
90-100	Lawn mower, tractor, farm equipment
90	USA Occupational Health & Safety workplace limit * Hearing damage may occur
75-85	Radio, vacuum cleaner, heavy traffic
60	Normal conversation
40-50	Rustling leaves, soft music, residential area at night
30	Whisper
15	Threshold of hearing
0	Weakest sound

(Brawley, 2006; McClaugherty & Gibson, 1998)



Design and Dementia Guidelines and Recommendations

- Noise level assessments
- Reduce noise echoes
- Noise production equipment
- Scheduling of intrusive noise
- Background noise
- Fire alarms
- Appropriate noise and positive sound
- Communication techniques
- Resident sensory assessment and accommodation
- Monitoring distress



NOISE LEVEL ASSESSMENTS

RECOMMENDATION:

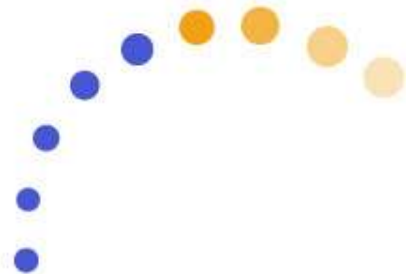
Ensure that knowledgeable staff use a sound level meter to complete Occupational Health and Safety noise level assessments. In addition, conduct informal noise assessments regularly



NOISE LEVEL ASSESSMENTS

Low or easy to implement strategies:

- ✓ Noise assessment
- ✓ Recognize and address the importance and impact of the duration and type of sound on PWDs
- ✓ Sound level meter



REDUCE NOISE ECHOES

RECOMMENDATION: Use acoustical ceiling and wall products



REDUCE NOISE ECHOES



Low or easy to implement strategies:

Consider breaking down rooms into smaller areas



REDUCE NOISE ECHOES

Low or easy to implement strategies:

Apply sound absorbing materials to walls



REDUCE NOISE ECHOES



Low or easy to implement strategies:

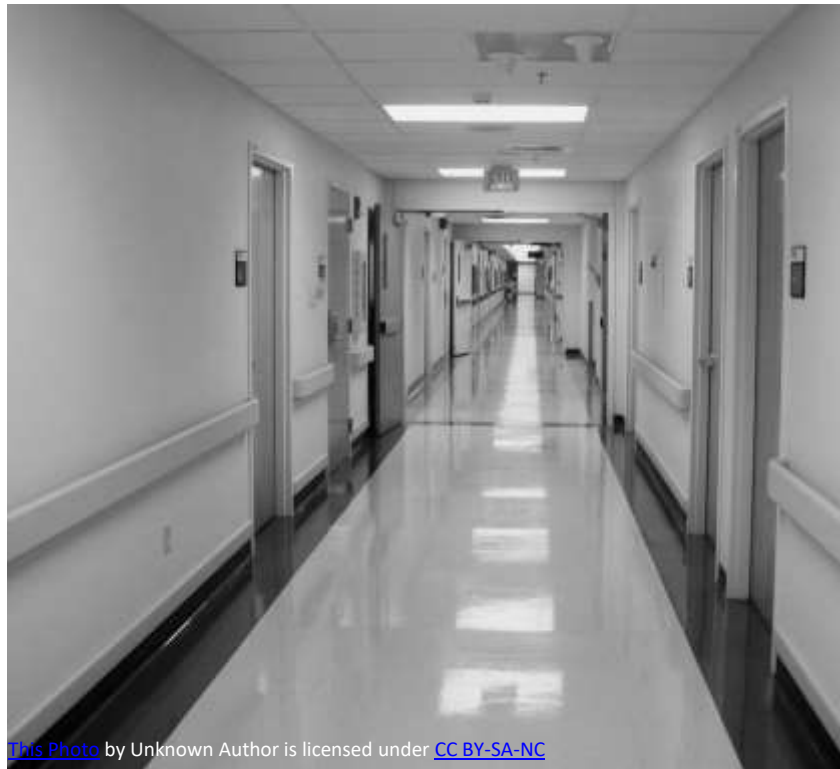
Reduce hard surfaces and increase sound absorbing textiles/drapes/carpet



REDUCE NOISE ECHOES

High or more costly to implement strategies:

- ✓ Consider how the architectural features of the space might affect the acoustics



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NOISE Knowledge to Practice
Recommendations



NOISE PRODUCTION EQUIPMENT

RECOMMENDATION:
Regularly maintain noise-producing equipment



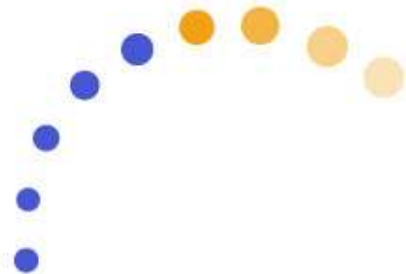
NOISE PRODUCTION EQUIPMENT

Low or easy to implement strategies:

- ✓ Lubricate squeaky doors, windows and wheels, leaky toilets or faucets routinely
- ✓ Ensure upkeep of mechanical lifts to reduce noise

Medium level strategies:

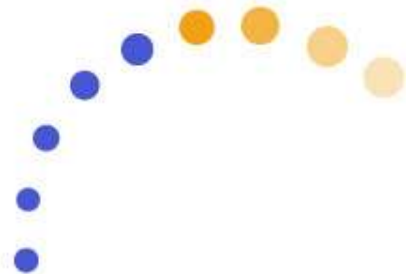
- ✓ Use cleaning equipment (i.e. wax floor machines, vacuums) at appropriate times for the resident



NOISE PRODUCTION EQUIPMENT

High or more costly to implement strategies:

- ✓ When possible, purchase equipment and machinery that is low noise
- ✓ HVAC equipment and ductwork should provide resulting sound levels that do not exceed *noise criterion*
- ✓ Soundproof HVAC equipment by utilizing sound attenuation measures



SCHEDULING OF INTRUSIVE NOISE



RECOMMENDATION:

Implement sound management schedule in high traffic areas

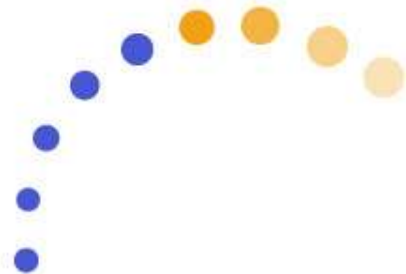
"floor cleaning" by Commercial Cleaning Maryland is licensed under CC BY-SA 2.0



SCHEDULING OF INTRUSIVE NOISE

Low or easy to implement strategies:

- ✓ Schedule vacuuming and floor buffing at times when the fewest number of people will be disturbed
- ✓ Minimize use of pill crushers
- ✓ Explore quieter ways of crushing pills
- ✓ Promote downtime and relaxation to minimize effects of cumulative noise
- ✓ Limit what is done in the serving area
- ✓ Schedule fire alarm testing appropriately



BACKGROUND NOISE

RECOMMENDATION: Regularly assess, monitor and minimize background noise



BACKGROUND NOISE

Low or easy to implement strategies:

- ✓ Set staff and visitor pagers and cell phones to vibrate
- ✓ Use music to draw people to therapeutic/ recreational programming
- ✓ Turn televisions off in common or private rooms when not in use
- ✓ Increase vigilance to monitor the effect of noise at high traffic times

Medium level strategies:

- ✓ Monitor and minimize intermittent and chronic background noise
- ✓ Eliminate PA system use if possible to reduce perceptual difficulties by PWDs



FIRE ALARMS

RECOMMENDATION:

Consider choice, distribution and location of audible devices. Plan fire alarm testing to be sensitive to the needs of persons with dementia



FIRE ALARMS

Low or easy to implement strategies:

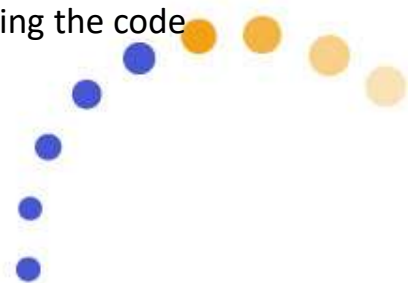
- ✓ Consider the client population and try to go to the affected floors prior to drill to address possible issues
- ✓ Consider walking through the process on a monthly basis

Medium level strategies:

- ✓ Discuss silent drills with your fire inspector
- ✓ Speak with your local fire department to discuss adaptations that may benefit PWDs during fire alarms
- ✓ Choose audible alarm signaling devices that optimize alarm recognition and minimize anxiety

High or more costly to implement strategies:

- ✓ Consider design methods that lower maximum alarm sound levels while still meeting the code requirements and the intent of the regulations



APPROPRIATE NOISE AND POSITIVE SOUND

RECOMMENDATION:

Encourage appropriate noise and positive sound when possible



APPROPRIATE NOISE AND POSITIVE SOUND

Low or easy to implement strategies:

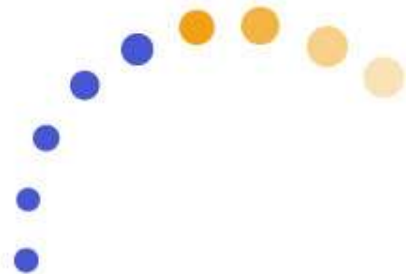
- ✓ Provide positive sound experiences through individualized programming
- ✓ Decrease meaningless noise as much as possible
- ✓ Be mindful of noise generated by staff
- ✓ Use positive sounds such as music



APPROPRIATE NOISE AND POSITIVE SOUND

Medium level strategies:

- ✓ Consider a commercial masking noise system to minimize other intrusive noises
- ✓ Ensure noise levels do not exceed guidelines
- ✓ Consider and balance the needs of PWDs with other persons with and without hearing loss both in activity (e.g. television) and safety (e.g. fire alerting device)



COMMUNICATION TECHNIQUES

RECOMMENDATION:

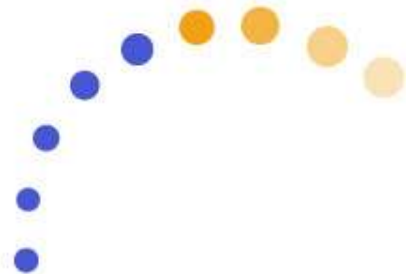
Ensure all staff understand environmental factors that contribute to intrusive noise and implement dementia-specific communication strategies when interacting with PWDs



COMMUNICATION TECHNIQUES

Low or easy to implement strategies:

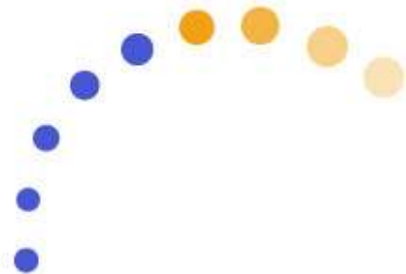
- ✓ Use less vocalization and more gestures and/or facial expressions
- ✓ Use normal/low tone of voice and patterns of "turn-taking"
- ✓ Staff should not shout to each other across rooms or at people



COMMUNICATION TECHNIQUES

Medium level strategies:

- ✓ Set routines and reminders to wear hearing aids and check batteries
- ✓ Engage PWDs in meaningful activities in small groups and small rooms
- ✓ Use simple, language-specific and culturally-relevant statements



Resident Sensory Assessment and Accommodation

RECOMMENDATION:

Regularly assess and accommodates for vision and hearing loss of persons with dementia



Resident Sensory Assessment and Accommodation

Low or easy to implement strategies:

- ✓ Gesture and use visual cueing versus shouting
- ✓ Ensure adequate lighting, and appropriate communication techniques to enhance hearing and decrease noise-related frustration, anxiety and/or paranoia

Medium level strategies:

- ✓ Ensure hearing assessments are available and referrals are made for PWDs
- ✓ Encourage use and maintenance of hearing aids (including regular battery replacement)
- ✓ Reduce background noise to enhance hearing aid compliance
- ✓ Monitor for earwax build-up



Monitoring Distress

RECOMMENDATION:

Regularly assess the effect of noise levels on PWDs and make efforts to counter any distress by reducing intrusive noise



Monitoring Distress

Low or easy to implement strategies:

- ✓ All staff, volunteers and family monitor noise-related distress by observing non-verbal cues

Medium level strategies:

- ✓ Where necessary, reduce intrusive noise/ introduce positive sound
- ✓ Ensure quieter lounge areas are available for those who do not want to be immersed in noisy activity



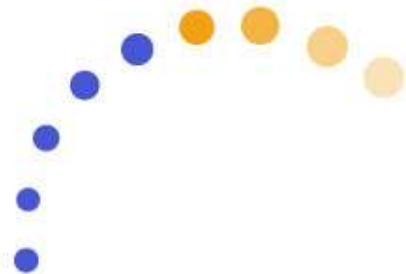
Key Messages

- While some design strategies may seem obvious, they are not always addressed
- Managing noise is a balancing act between code and quality of life



Call to Action!

- Walk through your space with the physical design recommendations- think about where you might be able to improve design and focus on a strategy to make September your “noise” month.



For more information please contact us at
support@brainxchange.ca

And visit

<https://brainxchange.ca/Public/Resource-Centre-Topics-A-to-Z/Design-and-Dementia>

