

Elder Conservatorium of Music Noise Management Plan

Authored: Elder Conservatorium of Music in consultation with Ian O'Brien

1. Objectives

The Elder Conservatorium of Music (ECM) is committed to minimising the risks to hearing of its staff and students when engaged in educational and research activity at the ECM. These aims will be pursued via a hazard management approach (set out in this Plan) using engineering, administrative, and personal control measures in accordance with the University’s HSW Handbook chapter on Noise and Sound Safety Management.

This plan reflects current best practice of professional and educational musical institutions. The broad scope of the Noise Management Plan reflects the ECM's desire to meet its duty of care to all of its staff and students.

2. Noise-related hazards for musicians

In recognition of the fact that noise is hazardous where exposure approaches

- 85 dB (averaged over 8 hours) and
- 140 dB at peak levels

and our staff and students may be engaged in activities outside of the University’s control that involve further exposure, the Conservatorium's strategy involves ensuring the provision of:

- specific hazards and controls associated with known risks in the ECM; and
- noise-related information to its staff and students, to help them be more aware of the potential risks of noise and possible controls for noise in their professional and personal activities.

The ECM has identified the *potential* for noise-related hazards occurring in a number of its day to day educational and research activities. These include course-related activities such as ensemble and studio-based work, and individual research-related work in studio and instrument performance-related contexts.

The following sets out the controls which are required to be observed by all staff and students engaged in musical activities at the ECM. Where you have any questions you should contact the School HSW Officer or Faculty HSW Coordinator.

3. Administration and oversight

3.1 Large and noisy ensembles (ECSO, ECWO, Jazz Big Band and Percussion)

Directors of large and noisy ensembles will file a noise hazard survey (pro-forma to be provided by the ECM) for each concert program. Surveys to be compiled early in each program's rehearsal cycle and provided to the ECM Director. This record will be kept on the ECM share drive under the HSW folder.

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3.2 Monitoring of noise levels

In 2014, the ECM conducted a number of sound level surveys (using integrating sound level meters) by a professional consultant in several of its large/noisy ensembles. The results can be found in “Ian O’Brien’s Report April 2014” saved to the ECM share drive. Recommendations from the consultant have formed the foundation for our hearing conservation measures and the abovementioned sound level surveys have provided us with baseline data for noise management.

Musical programs which include significant variation from standard/baseline noise levels—e.g., via use of repertoire involving higher-than-usual noise levels or use of new/unfamiliar rehearsal spaces—will trigger indicative measurement/s of noise levels and implementation of additional control measures as warranted. Indicative measurements may be taken using integrating sound level meters or similarly effective devices or apps (ask the ECM HSW Officer or Faculty HSW Coordinator for assistance if required).

In case of repertoire or a situation involving very exceptional/different/loud noise levels, noise readings should be made early in the rehearsal schedule to confirm levels and appropriate controls.

3.3 Reporting

ECM to provide information on how to report any work related noise and sound safety issues identified, which have the potential to expose them or others to hazardous noise, via UniSafe or to the ECM HSW Officer, Tanya Hardy. Students/staff are to be instructed on the use of UniSafe and encouraged to submit reports whenever applicable.

3.4 Staff exposure to unsafe levels of noise

Unsafe exposure may be established through noise level testing (e.g., using a digital dosimeter or relevant phone app) and/or through self-reporting by affected staff using Unisafe.

If the unsafe exposure was momentary or non-recurring (as reported via UniSafe) the Director, in consultation with affected staff, will determine whether a hearing screening should be carried out. If so, the screening will be organised by the ECM and a copy of the results filed by the ECM.

If the unsafe exposure is ongoing (e.g., in a rehearsal context involving close proximity to loud sources of noise), the ECM must assess whether engineering or administrative control measures can effectively reduce exposure to within safe levels.

If staff exposure to noise cannot be reduced using these means, the ECM will provide affected staff (as determined by dosimeter measurements made by Ian O’Brien in 2012 across a range of large/noisy ensemble contexts) with:

- a) hearing screenings once every 2 years, and
- b) appropriate fit-for-purpose personal hearing protection.

The School Business Manager will be responsible to ensure that required hearing screenings are organised and that screening results are kept by the ECM on the share drive and uploaded to HPE. If at some point the affected staff member is no longer exposed to unsafe levels of noise (e.g., through change in work duties, and/or by dosimeter re-test which demonstrate reduced exposure to noise to within safe levels) then provision of screenings and hearing protection will no longer be required. If it

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is determined there are additional affected staff – via the ECM review process - audiometric hearing screenings will be organised within 3 months.

3.5 Activities in studio environments

The potential for exposure to unsafe levels of noise is ever-present in electronic studio environments. In order to allow staff and students to gauge noise levels, studio environments will be fitted with dosimeters, preferably mains-operated and wall-mounted.

A limit of 88dB (peak) will be established in studios and 95dB (peak) in rehearsal studios. Students may book the rehearsal spaces for a maximum of 2 hours and the studio for a maximum of 4 hours. The relevant course coordinator will ensure that these rules are clearly posted in studios and in relevant course outlines.

3.5.1 Treatment of walls and surfaces in studio environments

Wherever practicable, the Conservatorium will ensure that studio environments are treated with noise-reducing acoustic tiles.

4. Education and training

4.1 Noise-related information in large and/or noisy ensemble course outlines

Coordinators of large/noisy ensembles will ensure that relevant information on sound levels and hearing protection is included within course outlines. An example is provided in Appendix B.

4.2 Noise-related information in studio-based course outlines

Coordinators of studio-based courses will ensure that relevant information on sound levels, hearing protection and noise-related requirements is included within course outlines. An example is provided in Appendix C.

4.3 General information on noise for workers

The ECM will provide regular access for all staff/students to musician hearing and noise-related information, and will provide periodic educational and/or related training sessions. The latter talks and sessions may be given by ECM staff or may involve invited experts. An example is provided in Appendix A.

Beyond providing a safe environment in ECM spaces, the ECM is also committed to a cultural shift amongst musicians towards increased awareness of the risks that noise pose to musicians and the steps that individuals can take to minimize risks throughout all of the musical and other activities in their day-to-day lives (not just during educational and research activity at the ECM). This will be accomplished via regular provision of relevant educational material—e.g. in the ECM HSW webpages, through periodic educational sessions (provided by knowledgeable ECM staff or invited specialist consultant/educators).

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APPENDIX—A

Elder Conservatorium of Music noise management controls

It is expected that engineering and administrative controls will be put in place.

Engineering Controls (indicative list, compiled from Ian O'Brien 2012 Report)

- Use of acoustically appropriate spaces for ensemble rehearsals;
- Where practicable, fitting-out studios and rehearsal spaces with sound absorbent, diffusive and/or reflective foam, baffles, etc.; equipping of studios with dosimeters in order to keep sound levels within acceptable levels;
- Where needed (and where practicable) use of acoustic shields, risers, increased spacing between musicians to achieve reduction of noise levels of exposed players;
- Ensemble set (indicative examples, compiled from Ian O'Brien 2012 Report)
 - 1 meter distance = roughly ½ exposure over time
 - Don't rank the brass
 - Use space between sections to reduce exposure
 - Use risers if available, but be aware of 'ear level' sound.

Administrative Controls

- A mandatory Noise and Sound Management presentation is given to all students during O'Week;
- A link to the Noise and Sound Management presentation and HSW information on the ECM's website, is emailed to all students half way through each semester and prior to mid-year enrolments;
- Think about exposure levels when planning repertoire;
- Spread out high-level rehearsals. Don't rehearse all the 'big' repertoire in one sitting;
- Keep an eye on ensemble sound levels;
- Encourage quiet breaks and warm-ups;
- Ensure you give players' ears time to recover from very loud, extended rehearsals – 24 hours if possible;
- Encourage rehearsing under printed dynamic levels, particularly for fff passages;
- Incorporate non-playing activities in rehearsals;
- Rotate the rear string desks;
- Encourage the use of mutes/earplugs in private practice.

Personal Protective Equipment (PPE)

- Required Hearing Protection
 - In dosimeter measurements made by Ian O'Brien in 2012 across a range of large/noisy ensemble contexts, the only workers found to be working in an excessively noisy context (and therefore required to wear hearing protection) were:
 - the Director of the Big Band
 - the Director of the Latin Jazz Ensemble and
 - the Director of the Percussion Ensemble.
- Recommended Hearing Protection (but is not limited to the following)
 - Students should note that measurements made by Ian O'Brien in 2012 found a range of other musicians who were involved in excessively noisy contexts. It is recommended that these students purchase appropriate hearing protection and monitor hearing every two years. These are:

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- Latin Band
 - Percussion
 - Guitar
 - Extra percussion
 - Alto Sax
 - Symphony Orchestra
 - Trumpet
 - Horn
 - Clarinet
 - Stage Band
 - Kit
 - Trumpet
- The ECM will make available both reusable musician's earplugs and disposable foam ear plugs at all times to students and staff;
 - Encourage students and staff to wear ear plugs when exposed to high levels of noise;
 - Encourage students and staff to purchase their own professional quality custom-fit ear plugs as these are more likely to be used on a more regular basis and should be part of any professional/serious musician's 'gear'.

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APPENDIX—B

Sample information on sound levels and hearing protection included within ensemble course outlines

In 2012 Ian O'Brien, a Queensland-based professional musician, audiologist, and leading researcher in the area of orchestral noise, came to the ECM and gave a pair of very well-attended educational talks to students and staff. He also took noise measurements at various locations in a number of our larger ensemble rehearsals. The results of these measurements, as well as recommendations for minimising undue exposure to noise in both ensemble and studio settings, are collated in Ian's Report to the ECM (May 2012).

During 2013 the Conservatorium implemented a number of recommendations from the Ian O'Brien Report in both its large ensemble and studio music environments. These include:

- engineering controls (e.g., use of risers and acoustic shields to protect players in high-risk locations within ensembles, use of acoustic wall tiles to help deaden sound in studios);
- administrative controls (e.g., use of structured respite and lower practice volumes at certain points in rehearsals, keeping within maximum noise levels with the aid of dosimeters in studio environments, increasing awareness of noise and hearing risks through educational campaigns);
- personal protection (encourage the use of personal ear plugs where other measures are not adequate to keep noise levels within a safe range)

In ECWO we are now doing the following things:

1. Re-configuration of seating arrangements (as space and musical communication allows) in order to
 - position brass higher (with use of risers) so that their sound travels over the heads of musicians below; and
 - create additional space between brass and instruments to the front of brass, so that noise levels reaching the latter musicians are lower than would otherwise be the case.
2. Targeted use of wrap-around noise screens at all rehearsals. The screens should be trialled in different positions to test for practical and most effective usage.
3. Use of structured respite where feasible. This practice, which reduces issues related to continuous loud noise, was observed in some ensemble rehearsals and commended by Ian O'Brien during his visit.
4. Where practical to do so (i.e., where rehearsal efficiency is not impeded) rehearsal at lower volumes to work on technically challenging aspects. This practice, which prevents lip fatigue amongst brass players as well as reduces overall rehearsal noise levels, was observed and commended by Ian O'Brien during some of the ensemble rehearsals.

In order to minimise risk in noise-prone situations, the Conservatorium makes disposable foam ear plugs available to students and staff free of charge at all times. ECWO players, especially those in more noise-exposed positions, are strongly urged to consider purchase of personal hearing protection. These provide protection with minimal disruption to normal sound balance. ECWO players are also referred to the full content of the O'Brien Report and to the excellent publication by Canadian audiologist/academic Marshall Chasin, entitled *Hear the Music: Hearing Loss Prevention for Musicians*. These documents are available on the Conservatorium's HSW webpage: [Health, Safety and Wellbeing | Elder Conservatorium of Music | University of Adelaide](#).

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APPENDIX—C

Sample information on noise and hearing protection included within studio-based course outlines

This course may require using spaces where a dB meter has been installed. If you exceed the set dB limit for the space, the lights will flash.

In order to minimise risk in noise-prone situations, the ECM makes both reusable gel ear-plugs and disposable foam ear-plugs available to students and staff free of charge at all times. Students and staff are also urged to consider purchase of customised personal hearing protection.

For more information regarding sound levels, hearing and hearing loss please refer to the full content of the O'Brien Report and to the excellent publication by Canadian audiologist/academic Marshall Chasin, entitled Hear the Music: Hearing Loss Prevention for Musicians both available here: [Health, Safety and Wellbeing | Elder Conservatorium of Music | University of Adelaide](#)

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