

Drywall Construction Workshop for acousticians

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On Wednesday 27 September 2017, the Institute of Acoustics, London Branch delivered a pilot one day workshop for acousticians to have a better appreciation of drywall construction issues and their impact on sound insulation performance.

The idea came from the observation that acoustic consultants to the building industry seldom have experience of practical issues of on-site installations. Eugénie's training in architecture included hands-on building work, which she felt valuable in her role as an acoustician. She wanted to give her peers their own opportunity to physically build partitions to understand builders' constraints and become more proficient in reading technical drawings.

Setting this interdisciplinary event was an interesting challenge in terms of educational content, logistics and communication among a group of volunteering organisers and facilitators. A compromise was reached with the Building Research Establishment (BRE), Knauf and Assured Acoustics to do the pilot workshop described below. We are very grateful to them for offering their time, expertise and resources to make this educational event possible.

20 delegates came to the BRE in Garston where we heard a series of presentations in the morning followed by demonstrations of construction works and details in the afternoon.

Peter Turner (Assured Acoustics) gave a talk on the principles of sound insulation in terms of mass, stiffness, resonance and coincidence. This was illustrated by field measurements and observations of reduced performance from site installations. The talk also invited us to think beyond partitions alone to see them as sub-elements within complex structures, and to also consider the behaviour of sound propagation in terms of structural distortions (eg. shear, bending or longitudinal waves).

Gary Timmins's (BRE, Acoustics Department) talk covered aspects of laboratory sound insulation testing. We were invited to ask for lab test results from product manufacturers and to be acquainted to the content of ISO 10140 Acoustics - Laboratory measurement of sound insulation of building elements to make the most of the results supplied. The presentation detailed the important features of sound insulation test labs, which was illustrated by a step by step slide show of BRE's recently built acoustic lab facilities.

Mandeep Bansal (Knauf) presented sound insulation from the point of view of a product manufacturer and installer. This included the specific use and restrictions from a selection of products, followed by case studies demonstrating how Knauf is addressing reoccurring detailing issues. This was a good basis for the workshop activities in the afternoon.

The second part of the day was spent in BRE's newly rebuilt acoustic sound insulation testing lab. Prior to the day, Knauf installation experts Steve Webber and Mark Thorburn, had built a number of open structures so that we could see how they were formed. They used a 1:1 structure to demonstrate how to install partitions. This included correct use of C-studs, handling of plaster board and installation of mineral wool. Some delegates even dared to take

part by cutting plaster boards, C-studs and fixing the partitions to the structure. Another section of the workshop featured penetration details, corner isolation and deflection heads. The physical constructions spurred a large volume of questions which were answered in detail, accompanied with lively site stories and counter examples.

The event was a great success overall, as best demonstrated by delegates and speakers testimonials below:

"I found this event very interesting. We saw models of penetrations, junctions and other bits as they should be done in reality. The trainers demonstrated how to build a drywall partition from scratch, which was interesting to see. I would have liked to have built a mini wall myself, in line with the details presented in the workshop, but perhaps it would have taken a long time. I would also have liked that there had been more time for a debate following the presentations, but the presenters were open for informal discussions during the tea breaks." Reena Mahtani delegate.

"The practical part of the drywall workshop was excellent. It is rare that we get to see so much detail during a site visit so seeing the partitions built stage-by-stage really helped me to understand some of the more subtle details that need to be observed. There were also some really great hints on how to forensically investigate a complete partition for faults." Matt Torjussen, delegate.

"I was enthused by the prospect of this "hands-on" workshop meeting and the opportunity to present some of my own knowledge and experience. There wasn't a dull moment, despite the late arrival of a delicious lunch! Although my presentation time was understandably limited for this one-day meeting, I was encouraged by the feedback and discussions from some of the delegates, who seemed keen to see similar workshops or seminars in the future. It was useful to hear a manufacturer speaking from direct experience, about site issues, practicalities and design solutions. I also enjoyed hearing about the construction of new acoustic labs - a rare event. Overall I enjoyed the day, but it was over much too soon." Peter Turner, speaker.

The enthusiasm showed by our delegates, speakers and demonstrators clearly suggests there is room to expand the concept. It would be interesting to see this event format replicated and developed over the years and being applied to other relevant engineering disciplines such as mechanical engineering, thermal insulation or architectural design, etc.

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