



## Council Takes the Sustainable Flooring Option

Lifting sections of a 104 year old floor to allow cables and floor boxes to be installed is a challenge particularly when a sustainable solution requires as much original timber as possible is to be retained and re-used.

### *GL Flooring delivers sustainable solution for City Council Chamber Floor*

One of the greatest challenges facing the owners and managers of historic buildings is to preserve their unique character whilst ensuring that they remain viable, active venues. This was the challenge facing Edinburgh City Chambers, one of the capital's busiest historic buildings.

The 220 square metres main chamber was built in 1904 as an extension to the original 1753 Royal Exchange building designed by John Adam. It has been occupied by the City Council since its completion and in constant use throughout its life, so it has taken a fair share of 'wear and tear'.

As part of the Council's 'Fit for Future' facilities asset management plan major conservation and renovation work in the main chamber ensures that facilities meet modern health and safety regulations. The Council also took the opportunity to upgrade facilities, installing high-tech audio visual systems, future-proofing the chamber's role as a venue for formal Council meetings, receptions, seminars, civic and private hire functions.

Installing electrical floor boxes for power and audio visual technology meant disturbing the 104 year old oak floor and its attractive mahogany frieze running around the perimeter of the room. The original floor had been laid over a solid concrete base with only shallow supports, so there was not room for conventional prefabricated cable troughs to be used.

This was a job for a specialist who could not only demonstrate the skill required to work on such a notable floor, but also carry out the work in a busy building that



continued to function as an administrative and civic centre. Main contractor Border Construction chose Edinburgh-based G L Floors for the job on the basis of their 40-year old track record in major period and modern flooring renovation projects. GL Floors' Project Director, Stuart Ramsay says, "Period renovations always throw up some challenges. In this case, some improvisation was required to make room for the cabling and socket boxes needed to make the best use of modern presentation equipment and allow for future developments such as video conferencing without trailing wires presenting a trip hazard"

### **Tackling Invisible Fixing**

The first challenge facing G L Floors was to lift complete runs of the mahogany frieze which, like the entire floor, had been installed using a traditional 'secret nailing' also known as 'invisible fixing' method. This involves nails being fixed through the tongue of the floorboard. When the tongue slots into the groove of the next board, it covers the nail head completely hiding the fixing from view. See figure 1.

Whilst this produces a beautiful finish and a very stable floor surface, it presents a major challenge for anyone wishing to lift the floor boards without damaging the tongue and groove construction. Simply ripping out sections was not an option, as the Council's strong commitment to sustainability required the contractor to retain as much as possible of the original timbers. Where replacements were required new materials had to match accurately the existing century old timbers.

Fortunately G L Floors has skilled flooring engineers trained in their own **Flooring Academy**. This approved SVQ training and in-house assessment centre, developed in conjunction with the Scottish Qualifications Authority (SQA) with support from Jewel & Esk College, provides formal training alongside practical on-the-job experience for all trainee G. L. Floors' fitters. The Academy provides a conduit for preserving traditional crafts skills which are passed down from time-served master craftsman to a new generation.

The G L Floors' team was therefore able to lift and retain most of the boards, allowing the cables to be laid under the floor and connect to new floor socket boxes cut into the floor at strategic positions. This work had to be co-ordinated with the main contractor who was handling the other joinery elements and co-ordinating the



numerous other specialist contractors restoring various interior features in the chamber.

With the cabling and floor boxes successfully installed G L Floors then refitted as much of the original boards as possible using the same 'invisible fixing method'. It is a testimony to the care and skill taken that 98% of the original floor timbers were re-used, leaving only small sections of new timber to be fitted. Here the G L Floors' team used their long experience of timber matching to select a variety of Sapelle Mahogany that closely resembled the original frieze. It will quickly mellow to look almost indistinguishable from the 104-year-old original timber. Less experienced installers might have been tempted to stain the wood immediately to match the older timber, but that produces a colour mis-match a few months later when the new timber mellows.

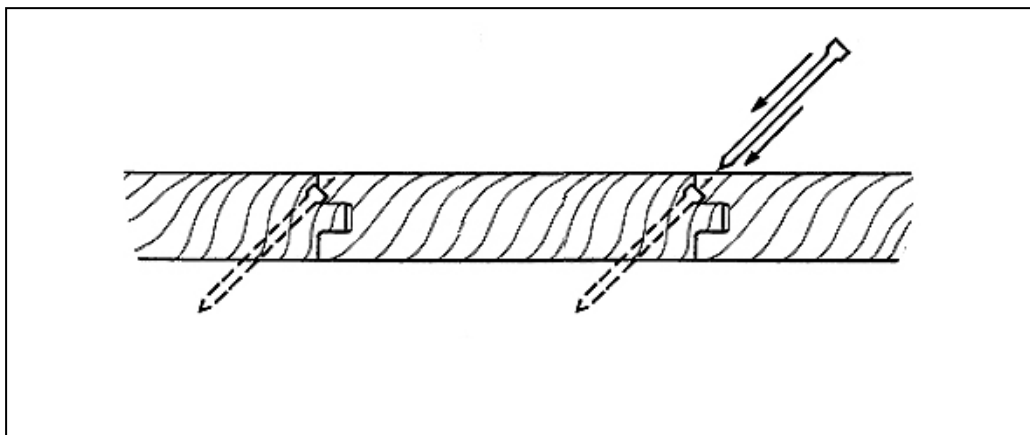
### **Environmentally Friendly Finish**

With the floor back in position G L then proceeded to restore the entire floor area. This involved power sanding the surface to remove the affects of 104 years of wear and tear, generally an unavoidable noisy process which creates a considerable amount of dust. However, disruption was minimised by using the very latest sanding equipment with vacuum dust collection facilities and noise reduction systems. This meant that the work could be carried out during normal working hours whilst council staff were at work and meetings were taking place around the remainder of the building. Stuart Ramsay explained " Our flooring operatives have considerable experience of carrying out this type of work within busy buildings and we have the process down to a fine art and in this case we were able to sand the floor without having to undertake any additional precautions such as sealing the room."

In keeping with the Council's strong environmental commitment, GL Floors selected a low VOC (volatile organic compound) water-based lacquer finish for the chamber floor that combines excellent environmental credentials with a performance specifically designed for high traffic areas. Manufactured by Danish company, Junckers Industrier A/S (Europe's largest flooring manufacturer) the 'HP Commercial grade' product has an ultra-matt finish which gives an appearance similar to a traditional 'oiled' floor, helping to disguise any deep seated blemishes, not completely removed by the sanding. Like all G L Flooring projects, the City Chambers work is backed by a free of charge follow-up inspection programme, in this case biannual, to ensure that the finish remains in optimum condition.

The restoration and conservation of the entire interior of the historic main chamber, of which the floor was just one important element, took just 6 months during which time the 700 staff continued to work with minimal disruption. The chamber, restored to its original splendour is now back in full use. With its new facilities, it can look forward to another century of active life.

**Fig 1 Invisible Fixing**



**Conservation and restoration at the City Chambers**

The conservation and restoration work in the main Council chamber was the first major renovation in its 104-year history. It involved every aspect of the interior including the central dome, the main staircase, a high-level frieze, plus furniture, paintings, wall finishes, lighting and floor.

**Main Contractor:** Border Construction