RENOVATION AND EXTENSION OF THE SNELLMAN MUSIC CENTER IN KOKKOLA, FINLAND

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1 INTRODUCTION

The Snellman hall has been the home of the Ostrobothnian Chamber Orchestra since the hall was opened in 1981. The hall was originally a multi-purpose hall for a school, even functioning as a gymnasium. The hall, with acoustics designed by M. Parjo, was considered to have good or at least acceptable acoustics for the orchestra, however there were no rehearsal facilities and the chamber music hall in the city hall were some concerts were held was in very bad condition.

So, it was decided to build an actual music center around the hall with both a chamber music/rehearsal hall as well as rehearsal rooms for the orchestra. It was also decided to renovate the Snellman hall, to enlarge the stage, install some slightly raked seating at the rear of the hall and to improve the acoustic variability of the hall.

In this paper, we will describe the acoustic design of both the new facilities as well as the renovation of the hall.

2 BACKGROUND

The Ostrobothnia Chamber Orchestra is a professional orchestra, formed in 1972, and is one of the best-known Finnish orchestras in the international arena. Under its founder, conductor Juha Kangas, it established an ambitious profile marked by a dynamic, quick-to-react sound and a repertoire stretching from the Baroque to the present day.

From the start of the project, it was decided to make rehearsal spaces for the orchestra and a highly variable chamber music/rehearsal hall. The actual renovations of the main hall were kept to a minimum, the stage was to be enlarged, the AV-system renewed and the curtains for acoustic variability was to be renewed and motorized.

During the early stage of the project, it was proposed to make a raked seating in the Snellman Hall, however this was rejected as this would have taken away too much volume. Instead, it was decided to make 4 raised seating rows in the rear of the hall. Also, the stage needed to be enlarged by approximately 1,5 m.

All the rehearsal spaces are in principle built as Box-in-Box constructions, however, it was decided not to make an internal cladding on the outside wall, as the thermodynamic and moisture handling becomes quite difficult. Instead, it was decided to use the seams of the façade elements to get sufficient flanking reduction.

The chamber music hall was designed with a size appropriate to double as a rehearsal space for the orchestra. Also, the hall should function for both reinforced music and conferences.

3 REHEARSAL ROOMS

There is a total of 11 rehearsal room, variating in size from 35 m^2 to 13 m^2. The acoustics for the rooms were designed in accordance with ISO 23591:2021, but with some acoustic variability with curtains.

Figure 1: Rehearsal room

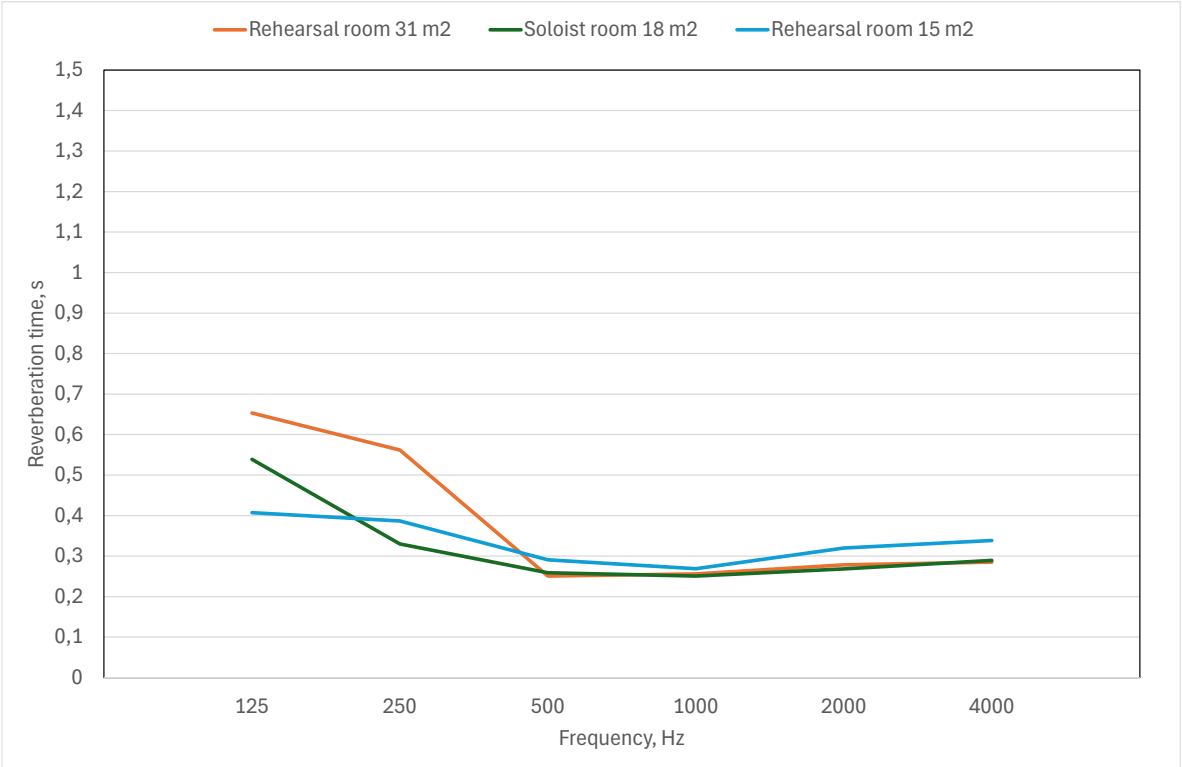

Figure 2: Reverberation of some of the rehearsal rooms, with curtains deployed

4 CHAMBER MUSIC HALL

The Fordell chamber music hall is designed with a maximum seating capacity of 110 person and with a flat floor. The hall is 10 m wide and 7 m high and has a slightly tilted backwall, giving the hall a length of 14,5 m/15,5 m. The hall has an inner visual surface of tilted wood elements and a visual

ceiling also of wood elements. Some gypsum boxes are placed on top of the concrete wall surfaces to control reverberation at bass frequencies.

The hall has individually operated curtains on all wall as well as 3 transvers curtains, extending about 1 m below the visual ceiling.

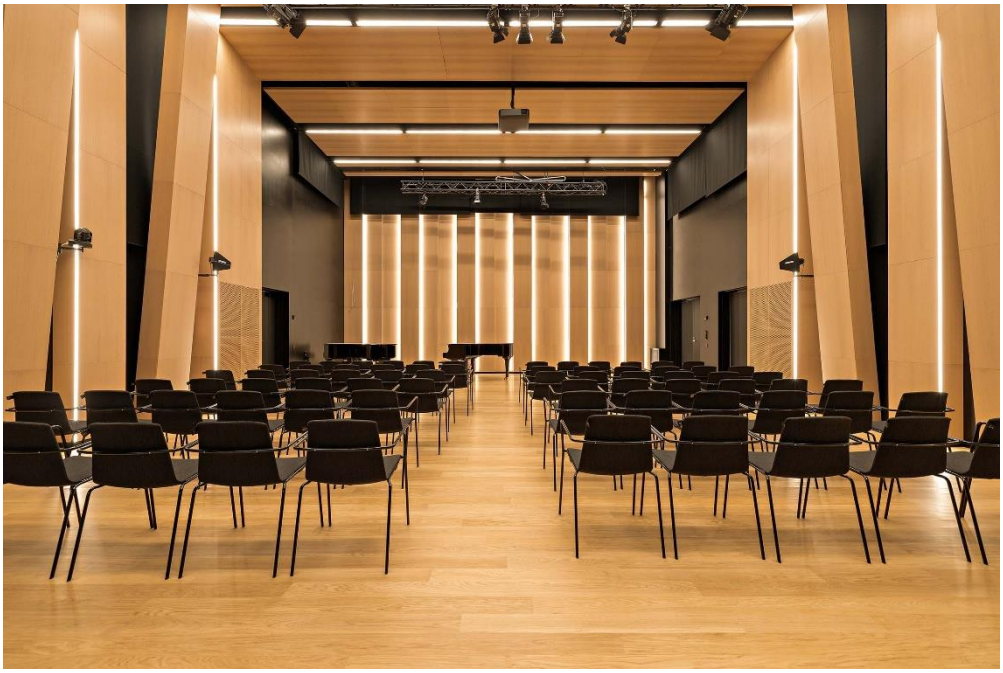

Figure 3: The Fordell hall

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As can be seen from figure 4, the maximum variability or the reverberation time is about 16% at 125 Hz and a about 50% at mid frequencies

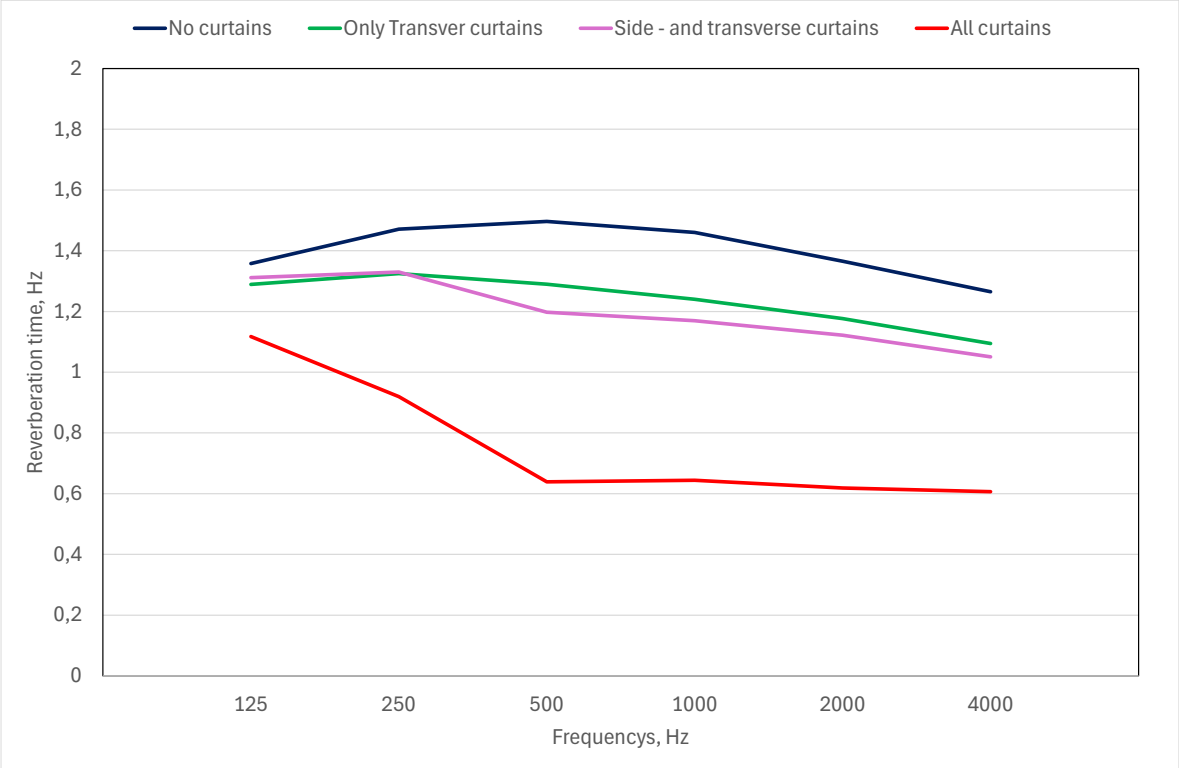

Figure 4: Measured reverberation time of the Fordell hall with different number of curtains exposed.

5 SNELLMAN HALL

As explained earlier, the Snellman hall was well liked for acoustic music, however needed a larger and improved acoustic conditions for reinforced music and other similar events.

The stage extension was done with the same buildup as the existing stage, as it was not possible to change the whole structure. Other changes included some minor changes of the wall surfaces in the stage are to make a new load-in door in the rear corner of the stage and adding an extra door for musicians' entrance.

Furthermore, the former hand operated, side drawn curtains, was replaced with new motor operated roller banners, both along the side wall and transverse ceiling curtains, see figure 5. The stage rear and side curtains were replaced with motor operated side drawn curtains, which can be parked in pockets on either side of the stage. Also, the possibility for a proscenium curtain was added.

The side wall of the halls is inward tilted, brick elements, originally designed to enhance lateral reflections. Also, the ventilation is integrated into these elements, see figure 5.

The original hall was measured in 2002 as part of a tour of the newer Finnish concert halls. The measurements were done in an empty hall. A distinctive feature is the limited height, only 9 m. The empty hall was quite reverberant, however according to both orchestra and concert audience, with a full audience the hall was quite acceptable for the wide range of repertoire which the orchestra performs.

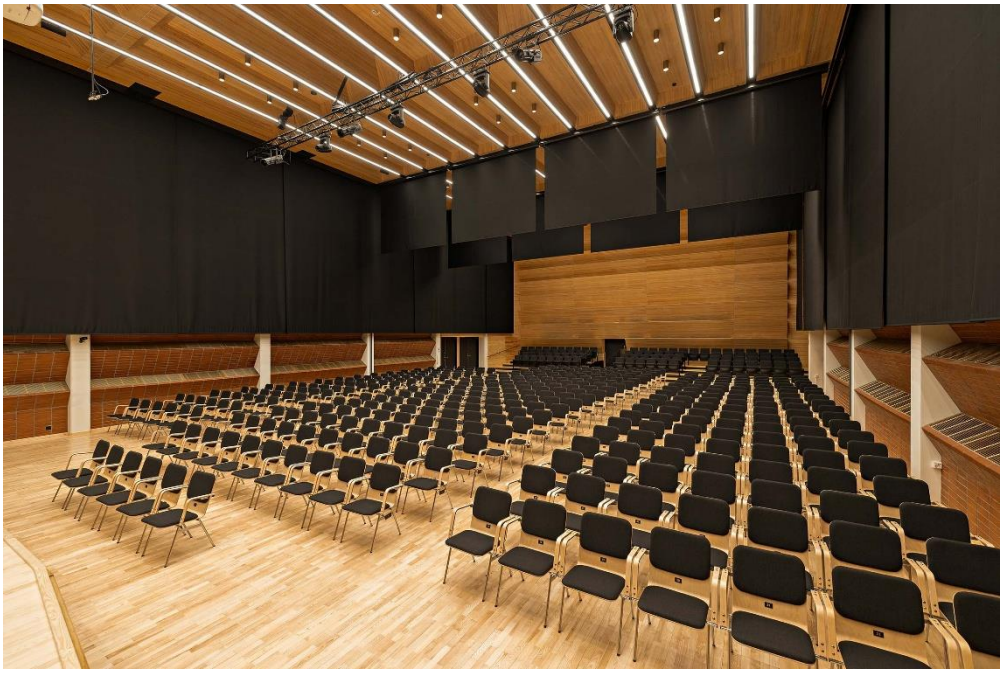

Figure 5: The Snellman hall with curtains exposed.

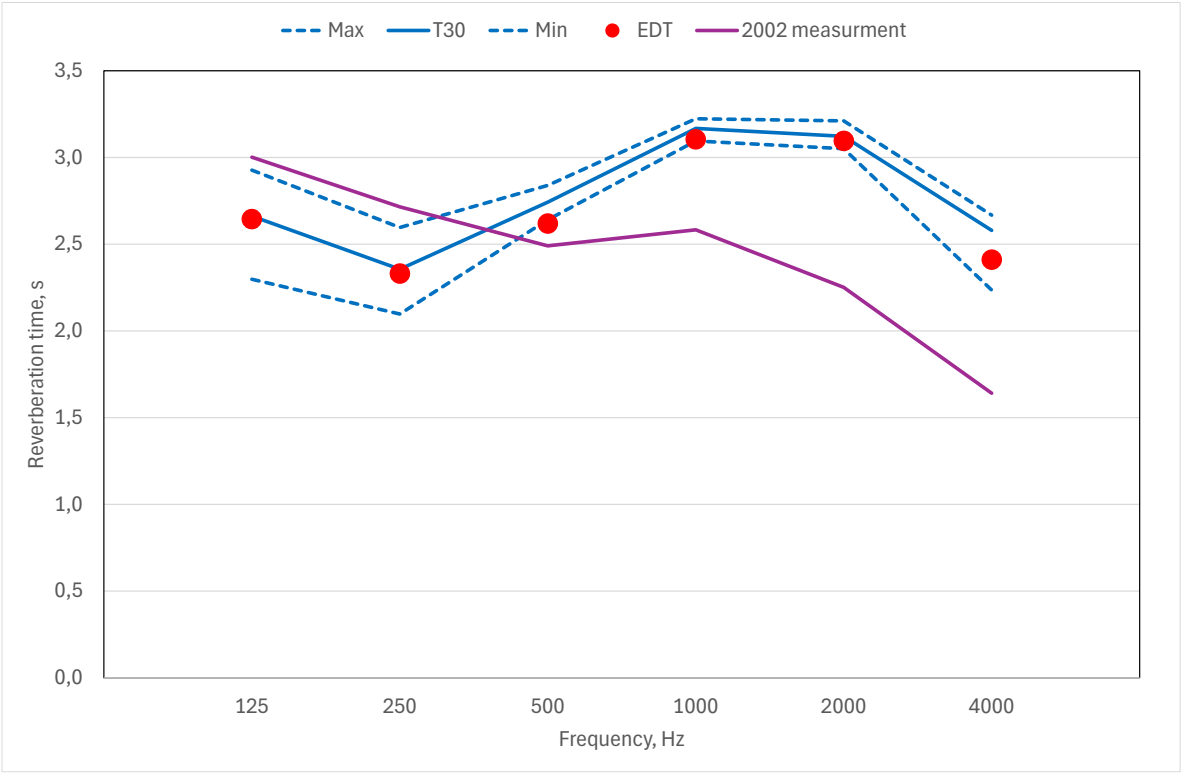

Figure 6: Reverberation time of the Snellman hall

The measurements were done without chairs in the hall, hence the longer reverberation time at mid and high frequencies. However, the reverberation time at low frequencies has been lowered slightly, both due to the extended stage and due to the openings in the ceiling for the curtains.

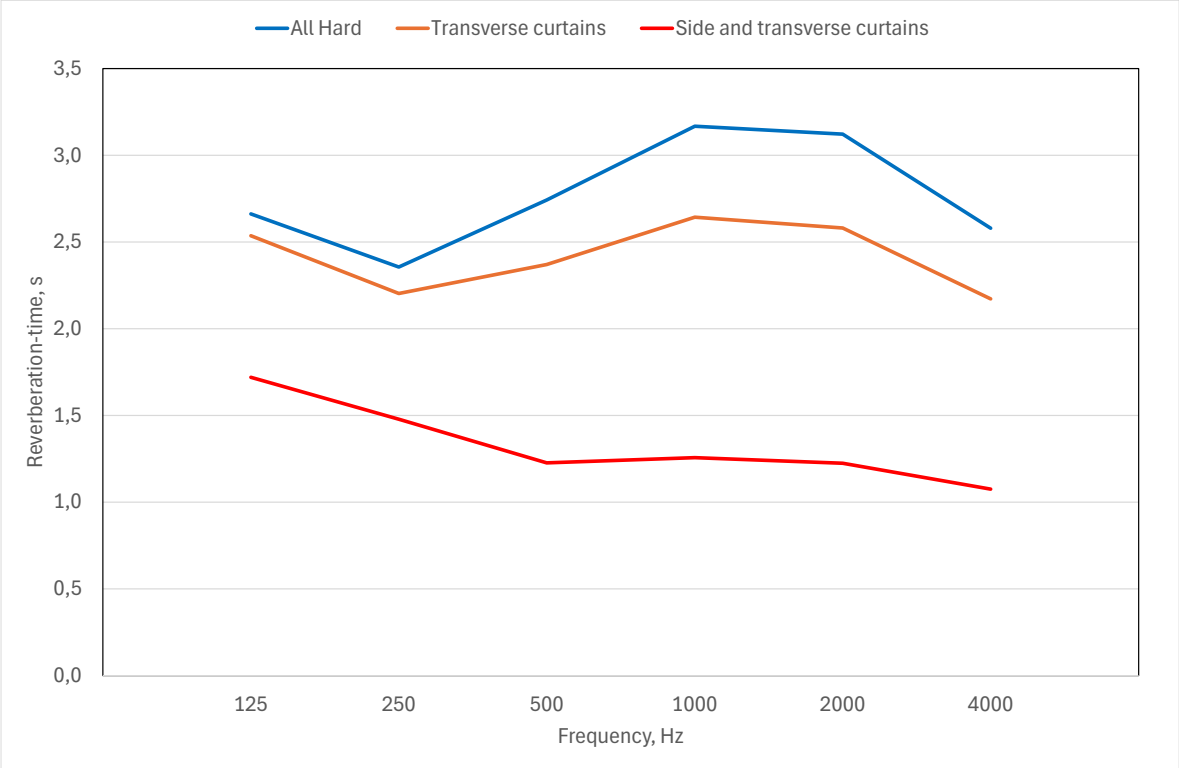

Figure 7: Variation of reverberation time with curtains.

As can be seen from figure 7, the transverse curtains give a reduction of about 15% at mid frequencies and when also deploying the side wall curtains the reduction is more than 50%. With all chairs in place, the percentual reduction will be smaller, but the hall has been praised for good acoustics also for reinforced events.

6 CONCLUSION

In this paper, the enlargement and renovation of the Snellman Music Centre has been described. The renovation was completed in early 2024 and comments both about the halls and the rehearsal facilities have overall been positive. The curtains in the rehearsal rooms are not used as much as expected, it seems that the musicians like a bit more reverberant condition.

7 REFERENCES

1. H. Möller, T. Lahti and A. Ruusuvuori, The acoustic conditions in Finnish concert spaces, 17th International Congress on Acoustics, Rome, 2-7.9.2001, CD-ROM proceedings paper 3C.10.04
2. H. Möller, Challenges of design of smaller multi-purpose halls, EuroRegio2016, 13-15.6.2016, Porto, Portugal