

## Chapter 9

# Roof of Paviljonki Congress and Trade Fair Centre in Jyväskylä, Finland

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*This chapter describes the collapse mechanism that occurred on 1 February 2003, the undertaken investigation process, and lessons learnt from the roof collapse of Paviljonki, a congress and trade fair centre in Jyväskylä, Finland. Investigations were carried out and reported after the time of the collapse. However, this chapter also presents new findings and additional analyses of this case. Further discussion and other relevant viewpoints are also provided.*

### 9.1 Introduction

The roof of Paviljonki, a congress and trade fair centre in Jyväskylä, Finland, collapsed on 1 February 2003 at 09:39. The collapsed area spanned 2,500 m<sup>2</sup>, which constituted a major part of the main hall. The last exhibition had finished the day before and had attracted roughly 10,000 visitors over the course of the exhibition. There were 12 people in the hall when the collapse began. The collapse took approximately two minutes, and there were no casualties. The building was completed and taken into use on 17 January 2003. The weather was clear and sunny with an ambient temperature of -26 °C, Relative Humidity (RH) of 61%, and an indoor temperature of around 20 °C. The weather had not changed significantly before the time of the collapse. There was a relatively even layer of snow about 20–25 cm deep on the roof, and its weight was measured to be 50 kg/m<sup>2</sup>. The unfactored design load under snow conditions was 200 kg/m<sup>2</sup>. [1]

### 9.2 The Investigation Process

Half a minute before the collapse, one of the twelve people present in the hall called the emergency services. The first fire and rescue service units arrived at 09:47 [1].

During the same day, the Safety Investigation Authority started an investigation because the incident was categorised as posing a major accident risk. The investigation