



**Figure 22.31** Atrium roof of the Brundtland Centre building from the inside. Because the saw-tooth roof casts a shadow on the modules, some of the cells are fake. This solution achieves a more elegant look from the inside. Reproduced with permission by BEAR Architekten T. Reijenga

## 22.3 BIPV BASICS

### 22.3.1 Categories and Type of Buildings

Building-integrated PV systems can be divided into different categories according to

1. cell and module type,
2. architectural integration,
3. type of building,
4. mounting technology, and
5. the function of the integration, and possible additional building and architectural functions of the PV system.

It is important that architects know all these categories and their possibilities. The design process consists of translating the brief (program made by the client) into spaces and enclosures, as well as combining functions and materials into constructions. This process is mainly based on experience and knowledge of constructions and materials. New applications based on existing knowledge or techniques are very important in the creative process. New inventions play a minor role in the process.

#### 22.3.1.1 Categories of cells and modules

There is a wide range of cells and modules in the market. There are various types of cell material, types of modules, framed or nonframed laminates, colors of the cells and colors of back sheets and frames; all provide a wide range of possible surfaces [32]. This is a very basic knowledge for architects. Architects will design BIPV systems with a certain image in mind. The choice of monocrystalline or polycrystalline cells will depend on color and not on efficiency [33].