



**Figure 22.29** Overview of the Brundtland Centre in Toftlund (DK). The glass roof on top of the atrium in the middle of the building has a saw-tooth roof with integrated 9.8 kWp transparent PV modules. Reproduced with permission by BEAR Architecten T. Reijenga



**Figure 22.30** PV modules above the windows on the southeast facade. A total of 6 kWp is integrated in the facade. Reproduced with permission by BEAR Architecten T. Reijenga

To achieve the optimum orientation and tilt angle of the PV array (south/ $60^\circ$ ), the atrium roof has been constructed in a saw-tooth shape that runs diagonally across the space. The steel truss roof, combined with the alternating pattern of dark round cells against transparent glazing, gives the atrium a high-tech atmosphere. Special attention has been paid to provide soft diffused quality of daylight in the interior of the atrium. A thin diffusing glass fabric is integrated into the modules so that sharp edges from the circular solar cells are softened.

In energy terms, the integrated PV system in the atrium roof was designed not only to produce electricity but also to provide shading to prevent the atrium from overheating. The transparent modules allow 20% of the available daylight to enter the atrium. The concrete floors and facades accumulate the heat surplus during the day. At night, the atrium is cooled by natural ventilation, while the mechanically assisted ventilation is used to ventilate the adjacent rooms. Automatic controls stop the ventilation when a sufficiently low temperature has been reached.