

Heat load and daylight control systems can be combined with the integration of PV systems. Moreover, when the designer studies these aspects in detail, he or she will discover that PV systems can also be part of the thermal envelope or thermal system (Figure 22.10) [19]. Another example is the refurbishment of Building 31 in Petten (NL) [20]. In this project, the PV system is integrated into a louver system that supports the 35 kWp Shell Solar modules, to keep out the summer heat and give less glare, and improve daylight conditions inside. To prevent shading of the modules by the upper louver, the dimensions of the louvers have to be almost twice the size of the modules (Figure 22.11) (Diagram 1) [21].

Orientation is a major design issue for (green) buildings. The heat load of a building, the need for shading and the design of facades all depend on the orientation.



**Figure 22.10** Daylight control at the Kaiser fashion house in Freiburg (D). This 4 kWp PV system on louvers is mounted in front of the glass façade and prevents glare inside. The PV louvers are in the center of the figure. Reproduced with permission by BEAR Architecten T. Reijenga



**Figure 22.11** South façade of ECN Building 31 in Petten (NL). The shading structure supports the 35 kWp Shell Solar modules. Reproduced with permission by BEAR Architecten T. Reijenga