- aesthetic quality of the BIPV system. This is the least scientific and most subjective part of judging BIPV systems. But the reality is that architecturally elegant, well-integrated systems will increase market acceptance.

Both the technical and building qualities of the PV system have been considered as preconditions. All installations in a building must function correctly.

Aesthetic quality is not a precondition. Although the discussion of architectural values is very broad, high-quality architecture or poor architecture is generally recognizable.

The criteria formulated by the IEA PVPS Task 7 workgroup for evaluating the aesthetic quality of building-integrated PV systems are [24, 25]

- natural integration,
- designs that are architecturally pleasing,
- good composition of colors and materials,
- dimensions that fit the gridula,[1] harmony, composition,
- PV systems that match the context of the building,
- well-engineered design,
- use of innovative design.

These architectural criteria need to be explained particularly to nonarchitects and manufacturers developing photovoltaic systems for integration into roofs and façades, who often believe that their systems fit perfectly. Some architectural journals,[2] however, have criticized PV projects in, for example, the 250 kWp project in Sloten, Amsterdam (NL) [26] and the 1.3 MWp project in Nieuwland, Amersfoort (NL) [27]. The average architect is not yet convinced of the "beauty" of a PV system on his building. All the more reason this book should show appealing examples and critically judge PV products.

The Lafarge Braas PV 700 roof tile system is a good example of how manufacturers look at their product. This system can be placed invisibly in between the flat Lafarge Stonewold tiles (Figure 22.12) [28].

However, in product advertisements, the manufacturer has chosen tiles with contrasting colors instead of harmonious colors, thus ignoring the fact that integration, in most situations, should be discreet. After commercial introduction, the system was prepared for use with a standard roofing tile. This corrugated tile is an even bigger contrast to the flat PV elements. Technically speaking, this high-quality product has been integrated. Aesthetically, however, the product has not been integrated because of the contrast. Therefore, the architect, building inspectors and clients might reject a PV system incorporating this product.

Explanation of the criteria

- *Natural integration*: This means that the PV system seems to form a logical part of the building (Figure 22.13). The system adds the finishing touch to the building. The

[1] Gridula is not a common word outside architectural vocabulary. It means the grid that is used for the design that is a (sometimes hidden) part of the building.
[2] Archis February 1998.