Figure 17.23 Facade integration on the Mataro Library in Barcelona, Spain (*Source*: IES-UPM)

They enable the use of a wide product spectrum from the glazing industry. Demands by building owners and architects have stimulated some PV production firms to produce customised modules. These can be "trimmed" for every purpose to a certain extent. Such modules are offered with several options:

- Variable dimensions up to 6 m^2.
- "Arbitrary" connections of cells.
- Choice of colour.
- Crystalline cells in black, dark blue, light blue, greenish violet and bronze and amorphous modules mostly in brown shades.
- Various inter-cell distance to allow transmission of light (crystalline modules). Amorphous modules can even be made semi-transparent, by incorporating many microscopic holes into the Si layer.
- Rear surface covers can be matched to the colour of cells; they can also be used to influence daylight (e.g. diffusing).
- Cells can be selected to have the same colour.
- The front surface grid can be matched in colour.

By integrating PV cells into conventional double-glazing cells, other functions can be combined with PV (e.g. sound protection). Modules that are to be integrated into a building envelope need to allow enough clearance around the edges. Cells and junction boxes must be placed at an adequate distance to the edge. If not, problems such as partial shading or assembling problems may occur.