

#### 4.1.7 Future Directions

Current DOE-sponsored research is building upon the foundation of the already successful low-E window commercialization efforts to develop further technological breakthroughs in window design. A new generation of "superwindows" will outperform the best insulated roof or wall. New "smart windows" will automatically adjust in response to changing climate conditions and occupant needs. These smart windows will minimize cooling needs, maximize daylighting benefits, and provide glare control, thermal comfort, and privacy for building occupants. With these new technological developments and their optimal use, windows and skylights can become a net source of energy in buildings, instead of a cause of heat loss as they have been in the past (American Council for an Energy-Efficient Economy and Energy Conservation Coalition, 1986). The amount of market penetration that has already occurred for the current generation of low-E windows suggests that commercialization of the developing window technology options should be rapid once performance and cost goals are met.

#### 4.1.8 Sources of Information

##### Interviews

Stephen Selkowitz, Lawrence Berkeley Laboratory, Berkeley, California, May 1988.

##### Documents

American Council for an Energy-Efficient Economy and Energy Conservation Coalition. 1986. "Federal R&D on Energy Efficiency: A \$50 Billion Contribution to the U.S. Economy," White Paper on the Consequences of Proposed FY 1987 Budget Cuts, Washington, D.C.

Andrews, S. 1986. "Window Shopping," Builder, pp. 67-69, September.

Brody, H. 1987. "Energy-Wise Buildings," High Technology, pp. 36-42, February.