

A range of options exist for providing exterior window shading.

- Adjustable exterior shading devices
- Fixed exterior shading devices
- Roof overhangs
- Balcony overhangs
- Lower solar heat gain coefficient (SHGC) for glazing
- Electrochromic glazing
- Natural summer shading from deciduous trees
- Reduced window-to-wall ratio

The most appropriate shading solution will vary from project to project and can be influenced by building scale, height, orientation, surrounding built and natural context etc. For example, fixed exterior shading devices, such as a projecting lower storey window, can offer good protection from high-angle summer sun on south-facing windows but no protection from low-angle setting sun in the west. Similarly, roof overhangs can be effective on 1-2 storey buildings but much less effective on 3-4 storey buildings.

#### ADJUSTABLE EXTERIOR SHADING

This report focuses on adjustable exterior shading devices for residential windows and provides a summary of product types available in the United States market. Such products are adjustable by the resident, either manually-operated or motorised, to adapt to the weather conditions. The adjustable shades generally provide a near-total

blocking of direct sunlight when in the closed position and, in some cases, tunable levels of control with one or more control states between fully open and fully closed. The new build and retrofit projects seeking to maximise energy savings, these shades offer the ability to maximise beneficial mid-winter solar heat gain while mitigating the negative effects of summer solar heat gain.

#### EUROPEAN CONTEXT

The City of Toronto's Auditor promotes the use of solar for sun-protection and provides a subsidy of up to \$1,500 to support the installation of solar shading devices on residential buildings.<sup>11</sup>

Adjustable exterior window shades or shutters are commonly available in the European market as an alternative to active cooling. Some have been designed with insulated mounting hardware to minimise thermal bridging.<sup>12</sup> The use of many historical exterior shade products from Europe in Canadian projects is hampering the cost of providing solar supply to the future, changing the installed motor to North American ratings, and certification costs.

<sup>11</sup>