

## Green Roofs

“A **green roof** is a roof of a building that is partially or completely covered with vegetation and soil, or a growing medium, planted over a waterproofing membrane. This does not refer to roofs which are merely colored green, as with green roof shingles. It may also include additional layers such as a root barrier and drainage and irrigation systems. The term *green roof* may also be used to indicate roofs that utilize some form of ‘green’ technology, such as solar panels or a photovoltaic module. Green roofs are also referred to as *eco-roofs*, *vegetated roofs*, *living roofs*, and *greenroofs*.” –Wikipedia

Green roofs are used to:

- reduce heating (by adding mass and thermal insulation) and cooling (by evaporative cooling) loads
- increase roof life span
- reduce stormwater runoff
- filter pollutants and carbon dioxide out of the air
- insulate a building for sound (the soil helps to block lower frequencies and the plants block higher frequencies)
- filter pollutants and heavy metals out of rainwater

A 2005 study by Brad Bass of the University of Toronto showed that green roofs can also reduce heat loss and energy consumption in winter conditions.

Too often people think of their roofs only as protection from the rain and elements. The design of the new monastery building project is an exception to this way of thinking. There will be two green roofs. One is on the maintenance building that will exhibit various native plant species in a hands-on learning environment (with a nursery area for native forbs and grasses). The other will be a beautiful gathering and meditative area on the new garage roof. It, too, will exhibit native plantings in a more formal garden atmosphere.

The other flat roof areas are designed for future photovoltaic arrays for energy generation. These roof areas will have a highly reflective white roof membrane so that the roofs do not become a “heat island” that forces the building to use more energy for cooling. There are also pop-up clerestory windows and Solatubes in this roof to provide natural lighting in interior spaces.

The southwest facing pitched roof of the chapel will also be used for photovoltaic purposes. The northeast facing roof incorporates clerestory windows for natural lighting.

–Neal Smith, executive director, administration  
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