

Section D.

Sustainability Considerations

Sustainability is most commonly defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Common Future. The Bruntland Commission). The four-pillar model of sustainability identifies four interlinked dimensions: environmental, economic, social and cultural sustainability, the latter including the built heritage environment. Increasingly, there is an understanding of the value provided by sustainable building practices and energy conservation. Heritage conservation and sustainable development can go hand in hand with the mutual effort of all stakeholders. In a practical context, the conservation and re-use of historic and existing structures contributes to environmental sustainability by:

- Reducing solid waste disposal (reduced impact on landfills and their expansions)
- Saving embodied energy (defined as the total expenditure of energy involved in the creation of the building and its constituent materials)
- Conserving historic materials that are significantly less consumptive of energy than many new replacement materials (often local and regional materials, e.g. timber, brick, concrete, plaster, can be preserved and reduce the carbon footprint of manufacturing and transporting new materials).

Additional considerations from the Standards and Guidelines for the Conservation of Historic Places in Canada include the following:

Sustainability Considerations:

- Identify the historic place's heritage value and character-defining elements — materials, forms, location, spatial configurations, uses and cultural associations or meanings.
- Add new features to meet sustainability requirements in a manner that respects the exterior form and minimizes impact on character-defining elements. Work with sustainability and conservation specialists to determine the most appropriate solution to sustainability requirements with the least impact on the character-defining elements and overall heritage value of the historic building.
- Comply with energy efficiency objectives in a manner that minimizes impact on the character defining elements and overall heritage value of the historic building.
- Weigh the total environmental cost of energy saving measures against the overall environmental costs of retaining the existing features or fabric, when deciding whether to proceed with energy saving measures.

The protection of our existing building stock will therefore support New Westminster's vision of becoming a more sustainable community.

D.1 EXISTING MATERIALS

Intent: Existing materials should be retained whenever possible.

General Provisions:

Building conservation is inherently sustainable, as it conserves embodied energy, reduces demolition that contributes to landfill sites, avoids impacts of new construction and minimizes the need for new building materials. There are many ways in which buildings can be upgraded without destroying heritage character-defining elements. Conservation projects also encourage local employment of specialized trades and professionals.



Retained original wooden architecture details on a protected house.

APPROACH		
RECOMMENDED	ACCEPTABLE	NOT RECOMMENDED
<p>Retention of as much of the existing building envelope materials as possible, including siding.</p> <p>Retention of the original window sashes and doors, or replace inappropriate assemblies with replicas of the originals. Excellent thermal efficiency may be achieved through the repair and maintenance of existing wooden windows.</p> <p>Installation of wood-framed storm windows will also aid with thermal efficiency and sound abatement.</p>	<p>Replacement of original windows should only be undertaken as a final resort in cases of extreme deterioration.</p> <p>Installation of sympathetic replacements of original windows, if required. These should replicate the original profiles in wood.</p>	<p>Installation of rainscreen sidings, as they introduce life cycle considerations and impair heritage character through the removal of original material</p> <p>Replacement of original windows in good condition, or replacement of deteriorated assemblies with inappropriate replacements.</p>

D.2 THERMAL AND ENERGY PERFORMANCE

Intent: Upgrades should balance heritage and energy efficiency.

General Provisions:

New buildings and additions will be required to meet Provincial requirements. Alternative methods of improved performance characteristics can be pursued for protected buildings.

Energy upgrading measures for heritage buildings should be assessed against the Standards and Guidelines for the Conservation of Historic Places in Canada. For further information on how to sensibly improve the performance of protected properties, please refer to the Vancouver Heritage Foundation's *New Life, Old Buildings: Your Green Guide to Heritage Conservation* (available online). Additional information on reducing operating energy demands is available on the Provincial Heritage Branch website.



Protected house with original windows and integrated storm windows for enhanced energy efficiency.

APPROACH		
RECOMMENDED	ACCEPTABLE	NOT RECOMMENDED
<p>Mechanical Systems: Inefficient mechanical systems are one of the primary reasons why existing buildings are poor thermal performers. Consider installing new boilers, hot water tanks and energy-efficient appliances that, at a minimum, achieve Energy Star ratings.</p> <p>Insulation and Weather-stripping: Introduce extra insulation, especially in attic and basement spaces. Consider the use of weather-stripping and other draft-proofing measures.</p> <p>Additions: Should be built to Building Code standards of energy efficiency.</p>	<p>Conducting building upgrades that meet minimum BC Building Code requirements.</p>	<p>Installation of mechanical systems/appliances with poor energy ratings.</p> <p>Introduction of insulation and weather-stripping in locations that interfere with character-defining elements.</p>

D.3 SOLAR PANELS

Intent: The installation of solar panels should not detract from the heritage value of the building.

General Provisions:

Solar technologies are important for both environmental and financial reasons, and the number of solar panel installations each year is growing. New visible technologies, however, may adversely impact the heritage values of the area, and their placement should be carefully considered. Every effort should be made to minimize the visibility of a system from the street, and its impact on surrounding properties and public areas.

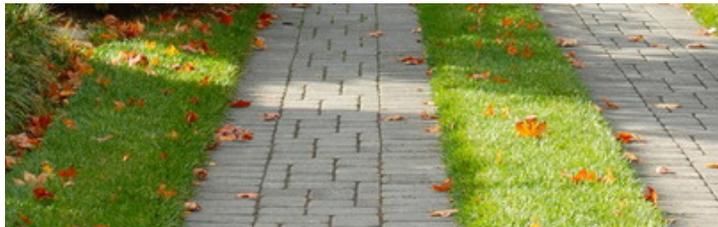
APPROACH		
RECOMMENDED	ACCEPTABLE	NOT RECOMMENDED
<p>Installation of solar panels on accessory buildings.</p> <p>Installation of solar panels on concealed roof planes such as internal valleys or behind raised parapets, within existing roof ridgelines, and flush with the roof.</p> <p>Ensuring that the panels do not require visible structural modification of the roof.</p> <p>Ensuring that any frame or structural element required to install the panels should be reversible (non-permanent). Such structures should also be colour co-ordinated to blend with the existing roof colour. Light-coloured shingles can be replaced with darker shingles in order to facilitate colour blending.</p> <p>Ensuring that only solar cells are located on the roof – any water storage tank or ancillary items are mounted on the ground (to the side of the structure) or within the roof.</p> <p>Installation of less bulky system, flush with the roofline, are preferred.</p> <p>Solar panels, tanks and other infrastructure free of the display of any form of private advertising or branding.</p>	<p>Solar panels, tanks and other infrastructure free of the display of any form of private advertising or branding.</p>	<p>Installation of solar panels on publicly visible roof surfaces without appropriate screening; do not alter character-defining elements in order to accommodate the installation of solar panel systems.</p> <p>Structural alteration of the roof, or any other character-defining elements, in order to accommodate the installation of solar panel systems.</p> <p>Installation of permanent structures to accommodate the installation of solar panels.</p> <p>Installation of solar panels that display private advertising or branding.</p>

D.4 STORMWATER MANAGEMENT

Intent: Stormwater management practices (techniques or technologies) should be used onsite.

General Provisions:

Water is one of our most important resources and techniques exercised on site can help to manage stormwater runoff and reduce the need to use potable water for landscape watering needs.



Examples of permeable paving materials.



Example of a rain garden and permeable surface.

APPROACH		
RECOMMENDED	ACCEPTABLE	NOT RECOMMENDED
<p>Improve runoff quality onsite using Best Management Practices, such as draining to vegetation, using previous paving and/or collect and drain runoff through a sump prior to discharge to storm sewer.</p> <p>Redirect or disconnect downspouts, where feasible. Redirect downspouts to gardens, grassy areas, rain barrels – places where water can infiltrate the ground and roots of plants, decreasing the amount of water that goes down storm drains.</p> <p>Collected rainwater stored in rain barrels can be used for future watering of lawns and landscape areas.</p> <p>Build a bioinfiltration system, such as a rain garden, in an existing low spot or near the drainage area of a rain barrel or downspout.</p> <p>Proper maintenance of gutters and downspouts.</p> <p>Ensure load-bearing capacity of the existing or new roof can support an extensive green roof system.</p>	<p>Stormwater management that meets minimum requirements (including the BC Plumbing Code).</p>	<p>Hardscapes that are impenetrable to water, such as paved driveways and walkways.</p> <p>Downspouts that release water less than six feet away from foundations and basements.</p> <p>Avoid using potable water for landscaping needs when stormwater can instead be used.</p>