

SUSTAINABLE ROOFING SYSTEMS

The concept of sustainable low-slope roofing was first developed in 1996 at a workshop held at the Oak Ridge National Laboratory. These systems were defined in the Proceedings of the Sustainable Low-Slope Roofing Workshop (held at the Oak Ridge National Laboratory, Tennessee in 1996). The definition is:

A roofing system that is designed, constructed, maintained, rehabilitated, and demolished with an emphasis throughout its life cycle on using natural resources efficiently and preserving the global environment.

The details and aspects developed from this workshop led to the CIB W083/RILEM 166RMS joint committee publication No. 271, titled “Towards Sustainable Roofing”. This publication defined sustainable roofing and provided a number of tenets or guidelines for the implementation and classification of sustainable roofing systems. A summary of the tenets of Sustainable Roofing is shown below

THE TENETS OF SUSTAINABILITY

As Developed by the joint task group: CIB (International Council for Research and Innovation in Building Construction) Working Commission W.83 / RILEM (International Union of Testing and Research Laboratories for Materials and Structures) Technical Committee 166RMS.¹

Minimize the burden on the environment

1. Use products made from raw materials whose extraction is least damaging to the environment.
2. Adopt systems and working practices that minimize waste.
3. Avoid products that result in hazardous waste.

¹ CIB W083/RILEM 166RMS: International Council for Research and Innovation in Building and Construction International Union of Testing and Research Laboratories for Materials and Structures

4. Recognize regional climatic and geographical factors.
5. Where logical, use products that could be reused or recycled.
6. Promote the use of "green roof systems" supporting vegetation, especially on city roofs.
7. Consider roof system designs that ease the sorting and salvage of materials at the end of the life of a roof system.

Conserve energy

8. Optimize the real thermal performance of roof systems, recognizing thermal insulation can greatly reduce heating or cooling costs during the lifetime of a building.
9. Keep insulation dry to maintain thermal performance and the durability of a roof system.
10. Use local labor, materials and services when practical to reduce transportation.
11. Recognize embodied energy values are a useful measure for comparing alternative constructions.
12. Consider the roof surface color and texture with regard to climate and the effect on energy and roof system performance.

Extend roof system life span

13. Employ designers, suppliers, contractors, trades people and facility managers who adequately are trained and have appropriate skills.
14. Adopt a responsible approach to design, recognizing the value of a robust and durable roof system.
15. Recognize the importance of a properly supported structure.
16. Provide effective drainage to avoid ponding.
17. Minimize the number of penetrations through a roof system.
18. Ensure that high maintenance items are accessible for repair or replacement.
19. Monitor roofing works in progress, and take corrective action as necessary.
20. Control access onto completed roof systems to reduce punctures and other damage by providing defined walkways and temporary protection.

21. Adopt preventative maintenance with periodic inspections and timely repairs.