



A new age in roofing: Carlisle offers roof gardens that benefit everyone

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By Tony Matter, freelance writer for the construction industry

For years the United States' roofing industry has focused its efforts on energy efficiency through the development of reflective, cool roof materials, but that is beginning to change. Popular in Europe and Canada for more than 50 years, roof gardens are quickly gaining acceptance in the U.S. roofing market because of their energy-efficient and environmentally friendly characteristics. Like their cool roof counterparts, green roofs have been shown to reduce the urban heat-island effect and decrease a building's heating and cooling costs.

While traditional cool roofs reflect the sun's solar UV rays to keep rooftops cool, roof gardens utilize growth medium and plants to reduce a roof's surface temperature through the cooling effect of moisture transpiration that occurs with the plants. In addition to reduced heat islands and lessened air conditioning usage roof gardens offer a variety of benefits that cool roofs do not, including improved stormwater management, air and water purification, superior sound insulation, added aesthetic value and extended roof life.

In fact, the number of roof gardens being installed throughout the country continues to climb. In Chicago alone, approximately three million square feet of roof gardens have been installed on city buildings in the past ten years and the trend is spreading. Contractors will soon have no choice but to jump on board or lose out on what seems to be a stabilizing portion of the industry's future.

A major reason that the growth of roof gardens has been so prominent in recent years is because of a number of new governmental regulations that address our society's increased environmental awareness. Federal, state and local governments are beginning to offer incentives and enforce mandates that reward and/or require roof gardens on newly constructed or renovated buildings.

"The increased demand for energy-efficient and environmentally friendly rooftops in the U.S. has been driven by legislation more than product development, but that is starting to change," said Dick Gillenwater, manager of advanced projects at Carlisle SynTec. "Energy-efficient and environmentally friendly roofing technology has been around for a long time, but we're just now beginning to see the benefits of this technology becoming the focus of the industry."

Roofing manufacturers such as Carlisle understand that roof gardens are not just a trend that will go away and have responded with an increase in roof garden products and systems. Carlisle offers two roof garden options that meet the needs of this burgeoning market - a traditional Roof Garden system and an innovative GreenGrid Roof Garden, a modular system that utilizes pre-planted trays. Carlisle's traditional Roof Garden requires nine components for its installation - an approved substrate, approved insulation, DensDeck Prime, an adhered Carlisle membrane, protection fabric, root barrier, drainage board, moisture retention mat and finally the growth media and vegetation.

The innovative GreenGrid system requires only five components for its installation - a substrate, insulation, adhered membrane, protection fabric and the pre-planted tray.

Both options are environmentally friendly and offer cool roof capabilities, however they do so in two very different ways. Ideal for creating usable rooftop spaces, the traditional Roof Garden system is available in shallow, medium and deep assemblies that offer the versatility to incorporate a variety of plants. The shallow system typically features sedum and smaller plants while the deep assembly is capable of handling fully-grown trees.

The convenient and easy-to-handle GreenGrid trays are made from lightweight and durable HDPE. The HDPE used in Carlisle's modular GreenGrid trays are made from 60% recycled content, further increasing the environmental friendliness of the innovative roof garden system. GreenGrid trays are available in three standard sizes - two feet by two feet, two feet by four feet and 40 inches by 40 inches. All of the standard trays are four inches deep, however Carlisle also offers eight-inch deep trays by special order.

Offering similar benefits as a traditional roof garden, the GreenGrid system is much easier and faster to install and provides the same water retention and cool roof capabilities that building owners and government officials desire. Plus, the GreenGrid system offers something that the traditional system does not, single-source installation that increases contractor profitability.

"For traditional roof gardens, the installation is split between roofing contractors and landscapers. Roofers install the waterproofing membrane and landscapers install the remaining components of the garden, including growth medium and vegetation," said Brandon Fuller, Carlisle's Roof Garden product manager. "GreenGrid offers single-source responsibility, allowing contractors to install the entire Roof Garden system by themselves."

Installing the entire GreenGrid Roof Garden system and not just the waterproofing membrane results in lower installed costs for building owners and increased profits for contractors. In fact because of the ease and speed of installation, the cost of a GreenGrid system is only about half of a traditional roof garden, while profits to the contractor are more than three times that of a traditional system. Instead of making money on the waterproofing system only, contractors now get to profit from the entire roof garden system.

Single-source installation of the GreenGrid system also allows contractors to provide their customers with a single warranty. On traditional roof garden projects, warranties are split between the landscape and roofing/waterproofing systems. Carlisle offers industry-leading warranties on all of its premium roof systems and GreenGrid roof gardens are no different. With the GreenGrid system, building owners can receive up to a 20-year total system warranty that covers everything from the performance of the underlying membrane to the integrity of the GreenGrid tray.

Roof repairs and routine maintenance are also easier with the GreenGrid system. If a leak ever occurred, moving the appropriate GreenGrid trays to make repairs is easy. Because Carlisle warrants the entire GreenGrid system, Carlisle will assume responsibility for moving the trays and making repairs in the event of a leak. With traditional roof garden systems manufacturers do not currently offer a total system warranty, so building owners must pay for the removal of rooftop growth media and leak repair. Not only is this a more costly and time consuming task, but the removal of layers and layers of growth media could result in severe damage to the planted material.

Another aspect of the GreenGrid system that helps increase contractor profitability is Carlisle's

partnerships with nurseries and greenhouses located throughout the country. "Our strong partnerships around the country help us deliver the pre-planted GreenGrid trays in a timely manner," said Fuller. "Our plants are selected and pre-planted by expert horticulturalists, ensuring that every GreenGrid Roof Garden receives vegetation that best suits its location." After the vegetation has been planted in the GreenGrid trays they are shipped directly to the local jobsite, reducing the need for landscape contractors and equipment.

To accompany its traditional and GreenGrid Roof Garden systems Carlisle offers a full line of membranes and accessories. Carlisle's Sure-Seal EPDM and Sure-Weld TPO membranes offer proven performance and long-term durability that are the basis for any roof garden system. These membranes are complemented by a host of pressure-sensitive and pre-fabricated flashing accessories that help to enhance the watertight seal of the single-ply system.

Regardless of what option is chosen, Carlisle's traditional and GreenGrid systems offer all of the energy-efficient and environmentally friendly benefits that have building owners and government officials excited about roof gardens. As this market continues to grow you can rest assured that Carlisle will continue to develop its roof garden systems to address not only the energy and environmental concerns, but the concerns of its dedicated contractors as well.

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