

# SAFETY SENSE

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***Editor's note: PASS ON EACH ISSUE OF THIS NEWSLETTER TO EVERYONE WITH SAFETY RESPONSIBILITIES AT YOUR COMPANY.***

## **Safely Installing/Maintaining Green Roofs**

### **KEY POINTS:**

- The market for green rooftops in cities across North America has grown exponentially during the past decade, largely because of the exploding popularity of Leadership in Energy and Environmental Design (LEED)-certified buildings and increasing environmental awareness. Some markets, such as New York and Chicago, are “mature,” while those in other cities are just getting started. No matter the stage of the market, the trend toward green rooftops offers opportunities for landscaping firms and their clients (through tax credits and increased energy efficiency). However, it also presents safety hazards that can spell disaster for unprepared workers and companies.
- Rooftop work creates some new challenges for landscape industry workers. While many of the topics employers should be covering under their standard safety program come into play — ladder safety, fall protection, avoiding slip-and-trip hazards, and weather-related illness — workers need to be aware of other challenges, such as working with cranes and hoisted materials, and securing loads and properly distributing them on rooftops.
- Employees of landscape companies involved in or considering rooftop work should take safety courses (that meet OSHA requirements) in rooftop fall protection, cranes, rigging, scaffolding, ladder safety, and other general Occupational Safety and Health Administration (OSHA) guidelines that apply to rooftop work. Green Roofs for Healthy Cities, a North American industry association that promotes green roof infrastructure, also offers training courses. While the classes don't address particular OSHA requirements, safety is discussed as part of the overall focus on best practices. The group's Green Roof Design & Installation 201 class includes the most safety content. Learn more at [greenroofs.org/index.php/eduprogram](http://greenroofs.org/index.php/eduprogram).

### **Checklist for Employers and Supervisors:**

- ✓ Make sure your insurance policy covers rooftop work and you have liability insurance of \$3 million to \$5 million.
- ✓ Don't sign a contract for an installation job without seeing an engineer's signature on a document, certifying the roof will bear the loads you plan to place on it.
- ✓ Ensure employees have received training that satisfies all OSHA requirements for the rooftop work they will be performing.
- ✓ At the beginning of each installation job, hold a safety meeting before allowing employees on the roof. Show them a diagram of the job site that illustrates the locations of exits, restrooms, hoisting areas, danger zones, walkways, and tool and material storage areas. Give every crew member a job for the first phase of work, usually hoisting materials, and tell each person what area to be in. (Do the same for subsequent work phases.) Each member of the team, not just the crew leader, needs to understand what's going on. As with any pre-work meeting, point out hazards particular to the job site and types of work being done and ways you will mitigate danger.

- ✓ Hold additional safety meetings daily or weekly and on an as-needed basis. Discuss violations of safety policies and reinforce correct work practices.
- ✓ Designate a supervisor or crew leader to oversee safety on the job site. Safety should be this person's focus; he/she should not be working hard at other tasks, which could cause him/her to lose sight of the big picture.
- ✓ Teach workers to keep the rooftop job site organized (with tools and materials in appropriate areas) and free of trip hazards, and strictly enforce your policy.
- ✓ If the building doesn't have a parapet wall or fence around the rooftop (regulations in some cities require these), then install orange plastic fencing or some another type of high-visibility barrier that will remind workers where the edge is.
- ✓ If possible, don't bring all materials to the rooftop at the beginning of the job. The more crowded the limited workspace is and the more employees have to move things, the greater the potential for accidents. If you do bring everything onto the roof at once, store it the way you would pack a moving truck, with the materials you'll need first being most accessible.
- ✓ Pay attention to load distribution. Placing lots of heavy loads in the roof's center, which is typically a weak spot, is a common, dangerous mistake. An engineer can help you determine what parts of the roof have maximum weight-bearing capacity. Usually these points are where crossbeams tie into walls. If you aren't sure where they are, placing loads around the perimeter of the roof is safer than putting them in the middle.
- ✓ Be aware of the increased risk temperature extremes pose and take steps to protect workers. Temperatures can be higher on rooftops than on the ground, and usually there's no shade, increasing risk for heat-related illness in warm months. At a green roof job site in Long Island City, New York, for example, temperatures averaged between 120 and 130 degrees. Provide employees with ice water and allow them to take 15-minute breaks in a shaded area every two hours. Consider purchasing outdoor canopies, sold at most sporting-goods stores. Employees can move the canopies, usually about 10 feet by 10 feet in size, to different locations on the roof and work under them. The shade they provide lowers the temperature significantly and reduces the risk of sunburn and skin cancer. Schedule work during cooler parts of the day or use lights and work at night.
- ✓ In winter, exposure to wind on rooftops can make employees more susceptible to cold-related illness. Encourage them to drink warm, non-caffeinated beverages, ensure they dress appropriately, and allow them to take 15-minute breaks in a warm area every two hours. (For more information about protecting workers from heat- and cold-related illnesses, see the May 2009 and November 2009 *Safety Sense* newsletters, respectively.)

## Employee Dos and Don'ts

### Do:

- Wear a hard hat at all times. Hoisted material is an overhead hazard, and, if you are working on a lower-level roof, crews working above you could drop tools and materials. Objects might be dropped from windows as well.
- Recognize the increased risk of heat-related illness. Take 15-minute breaks (in shade if possible) every two hours, and drink at least one cup of ice water every 15 minutes to stay hydrated. (For more information about avoiding heat-related illness, see the May 2009 *Safety Sense*.)
- Guard against cold-related illness. Drink warm, non-caffeinated fluids, and take 15-minute breaks in a warm area every two hours. (For more on cold-weather precautions, see the November 2009 *Safety Sense*.)

- Wear necessary PPE. In addition to a hard hat, this can include fall protection, goggles, gloves, hearing protection, and steel-toed boots.
- Have an understanding of the roof's layout (including where exits and restrooms are and where you can go to warm up or cool down during extreme weather) and proper load distribution for it (see above).

**Don't:**

- Hang over building edges or parapet walls/fences along a roof perimeter. Workers sometimes do this in order to reach materials being hoisted onto the roof.
- Stand under hoisted material. Objects might fall out and the securements could break or come loose.
- Forget ladder safety. For a refresher, see the American Ladder Institute's Web site, [laddersafety.org](http://laddersafety.org).
- Let the job site become messy. Store tools and materials in designated areas, keep the roof organized and free of trip hazards, and ensure walkways are clear.
- Be careless. If you aren't alert while handling large, heavy loads on rooftops and ramps, accidents are likely.

*Richard Heller, owner of Greener By Design in Pelham, New York, contributed information for this newsletter. Heller's company specializes in green roofs and has won several PLANET Safety Recognition Awards.*

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