



Environmental Considerations for Purchase of Roofing Products and Services

According to the U.S Department of Energy, low-slope roofing—the kind most commonly used in commercial buildings—is one of the most environmentally damaging building materials. The following sample RFI/ RFP questions have been developed and listed in table format so they can be integrated easily into a pricing template or used in other formats.

These questions address basic environmental and human environmental health issues related to roofing materials and systems. We recommend that you use all questions and prefer suppliers that provide the most preferred responses. Additionally, hospitals may be able to achieve LEED credits (www.usgbc.org) through purchase and installation of roofing products or systems meeting one or more of these criteria. Thus, we encourage you to integrate the answers into the information customers receive about the final contract products and suppliers. Even if a hospital is not seeking credits, they may want to use the information to make more informed selections.

Note: The information in the gray-shaded boxes is not intended to be sent to potential suppliers, but used by procurement staff to evaluate vendor responses and understand the issues the questions seek to address.

Question Title	Question	Yes/No Definition	Preferred Answer	Rationale: Why ask suppliers this question?	Other considerations or options for this question
Halogenated organic compounds and lead	Does the supplier offer roofing membranes free of halogenated compounds and lead? (Yes/No)	Y/N. Y=Supplier offers roofing membranes that do not contain lead or halogenated organic compounds (organic compounds containing bromine, chlorine or fluorine, i.e. no PVC and no membrane of any polymer type with halogenated flame retardants or other halogenated organic additives.) N=Supplier does not offer roofing membranes that are lead-free, PVC-free or free of halogenated organic additives.	Yes	In the event of fire, burning PVC produces strong acids and toxic persistent organic pollution including dioxin. Halogenated organic compounds tend to be persistent and are often toxic and bioaccumulative. It is often impossible to avoid creating persistent, bioaccumulative, toxic byproducts during their production.	Consider asking supplier to submit a list of roofing products that are lead-free, PVC-free and free of halogenated organic additives.

Recycled Content	Does the supplier offer roofing products that contain recycled content? (Yes/No) If yes, please indicate percentage of preconsumer and postconsumer recycled content.	Y/N. Y = Supplier offers roofing materials and accessories that contain recycled content. meet or exceed. N = Supplier does not offer roofing materials and accessories that contain recycled content.	Yes	<p>Buying recycled-content products ensures that the materials collected in recycling programs will be used again in the manufacture of new products. Less energy is typically required to manufacture these goods. When energy demand decreases, fewer fossil fuels are burned and less carbon dioxide is emitted into the atmosphere.</p> <p>Many manufacturers provide information about recycled content on their websites. The industry standard for recycled content in roofing varies by material type.</p> <p>The EPA Comprehensive Procurement Guidelines (CPG) establishing minimum percentages of recycled content for products purchased by federal agencies include recommended minimum recycled content for steel, aluminum, fiber/fiber-composite, wood/plastic composite, and cement roofing products. Recommendations are based on current information on commercially available recycled-content products and updated as marketplace conditions change. For more information, see http://www.epa.gov/epaoswer/non-hw/procure/products/roof.htm</p> <p>LEED Credits-Installing a roof made from recycled content can help facilities qualify for the following LEED Credits (www.usgbc.org): Materials and Resources Credit 3: Sustainably Sourced Materials and Products (LEED for Healthcare); Materials and Resources Credit 4: Recycled Content (LEED for New Construction); and, Materials and Resources Credit 3: Sustainable Purchasing—Facility Alterations and Additions (LEED for Existing Buildings: Operations and Maintenance).</p>	<p>Consider asking supplier to submit a list of its products that meet or exceed the EPA CPG recommendations, if applicable for the material type.</p> <p>Consider asking the supplier to provide documentation demonstrating how their products assist in achievement of LEED credits.</p>
Protected-Membrane Roofs	Does the supplier offer protected membrane roof systems? (Yes/No)	Y/N. Y = Supplier offers protected-membrane roof systems. N = Supplier does not offer protected membrane roof systems.	Yes	<p>According to the U.S. Department of Energy, use of a protected-membrane roof increases the roof membrane life by protecting it from UV exposure and allows rigid insulation to be salvaged and reused during reroofing.</p> <p>For additional information, visit the Whole Building Design Guide, Roofing Systems section: http://www.wbdg.org/design/env_roofing.php</p>	<p>Consider asking supplier to submit a list of the protected-membrane roof systems offered.</p>

Product Takeback/ Recycling	Does the supplier offer a Product Takeback Program for roofing materials at the end of their useful life? (Yes/No) If yes, will the materials be recycled? (Yes/No)	Y/N. Y= Supplier has systems in place to recycle existing roofing materials and/or insulation. N = Supplier does not currently recycle roofing materials and/or insulation and/or insulation.	Yes	<p>It is estimated that there are 1,400 square miles of low-slope roofing on U.S. commercial buildings. Most low-slope roofs only last 10 to 20 years and very little old roofing is recycled. Many roofing materials, including thermoplastic roofing products (PVC and TPO), metal roofing systems, and some bituminous roofing systems are recyclable.</p> <p>LEED Credits—Recycling of roofing materials can help facilities qualify for the following LEED Credits (www.usgbc.org): Materials and Resources Credit 2: Construction Waste Management (LEED for Healthcare and LEED for New Construction); and Materials and Resources Credit 8: Solid Waste Management—Durable Goods (LEED for Existing Buildings: Operations and Maintenance).</p>	Consider asking supplier to submit documentation outlining the company’s roofing material and/or insulation takeback program, demonstrating that all materials removed from the existing roof will be recycled.
Solar Reflective Index	Does this supplier offer roofing membrane materials that have a Solar Reflective Index greater than or equal to 78 for low-sloped roofs and greater than or equal to 29 for steep-sloped roofs, calculated according to ASTM E1980? (Yes/No)	Y/N. Y = Supplier offers roofing membrane materials with a Solar Reflective Index (SRI) ≥ 78 for low-sloped roofs and ≥ 29 for steep-sloped roofs, calculated according to ASTM E1980. N = Supplier does not offer roofing membrane materials with a SRI ≥ 78 for low-sloped roofs and ≥ 29 for steep-sloped roofs.	Yes	<p>Reflective roofs can dramatically reduce heat gain in commercial buildings and can also help to reduce the heat island effect that occurs in areas with large expanses of roof area and pavement. Mitigating the urban heat island effect results in lowering ground level temperatures near buildings, thereby reducing conditions favorable for ground-level ozone (smog) formation that can lead to respiratory symptoms and illness. Cooling loads are also reduced, reducing building energy costs, curbing reliance on fossil fuel-generated electricity, and reducing associated particulate and greenhouse gas emissions.</p> <p>Product information is available on the Cool Roof Council (www.coolroofs.org) and the US EPA ENERGY STAR (www.energystar.gov) websites.</p> <p>LEED Credits- Facilities that install and maintain reflective roofing materials may qualify for the following LEED Credits (www.usgbc.org): Sustainable Sites Credit 7.2: Heat Island Effect—Roof (LEED for Healthcare, LEED for New Construction, and LEED for Existing Buildings: Operations and Maintenance).</p>	Consider asking supplier to provide a list of its roofing membrane materials with a SRI ≥ 78 for low-sloped roofs and ≥ 29 for steep-sloped roofs.
Vegetated Roof Options	Does the supplier offer vegetated roof options? (Yes/No)	Y/N. Y = Supplier offers vegetated roof options. N = Supplier does not offer vegetated roof options.	Yes	<p>Vegetated or “green” roofing systems absorb stormwater, slow the release of stormwater runoff after heavy precipitation events, help to mitigate the urban heat island effect, and reduce building heat gain.</p> <p>LEED Credits- Facilities that install vegetated roofs may qualify for the following LEED Credits (www.usgbc.org): Sustainable Sites Credit 6.1: Stormwater Design—Quantity</p>	Consider asking supplier to provide a list of vegetated roofing options.

				Control (LEED for Healthcare and LEED for New Construction); Sustainable Sites Credit 6: Stormwater Quantity Control (LEED for Existing Buildings: Operations and Maintenance); and, Sustainable Sites Credit 7.2: Heat Island Effect—Roof (LEED for Healthcare, LEED for New Construction, and LEED for Existing Buildings: Operations and Maintenance).	
Photovoltaic Roofing Options	Does this supplier offer photovoltaic roofing option? (Yes/No)	Y/N. Y = Supplier offers photovoltaic roofing options. N = Supplier does not offer photovoltaic roofing options.	Yes	<p>Photovoltaic (PV) roofing can produce electricity for the building. In some jurisdictions, installations can be financed through power purchase agreements, minimizing or eliminating the need for the hospital to issue a capital outlay to purchase the PV array. In some instances, PV roofing also shades the roof membrane, reducing air conditioning loads and extending the life of the roofing membrane.</p> <p>LEED Credits-Facilities that install on-site renewable energy systems may qualify for the following LEED Credits (www.usgbc.org): Energy and Atmosphere Credit 2: On-Site Renewable Energy (LEED for Healthcare and LEED for New Construction); and, Energy and Atmosphere Credit 4: On-Site and Off-Site Renewable Energy (LEED for Existing Buildings: Operations and Maintenance).</p>	Consider asking supplier to provide a list of photovoltaic roofing options.
Hot-mopped asphalt installation techniques	Does this supplier NOT use hot-mopped asphalt installation techniques? (Yes/No)	Y/N. Y = Supplier does not use hot-mopped asphalt installation techniques. N = Supplier uses hot-mopped asphalt installation techniques.	Yes	<p>Installing hot-mopped asphalt roofing can expose construction workers to asphalt fumes. According to OSHA, “Health effects from exposure to asphalt fumes include headache, skin rash, sensitization, fatigue, reduced appetite, throat and eye irritation, cough, and skin cancer.” For more information about OSHA standards for asphalt fumes, please visit http://www.osha.gov/SLTC/asphaltfumes/index.html</p> <p>LEED Credits-Facilities that use self-adhering, cold adhesive, torch-applied, or heat-weldable membranes and installation techniques instead of hot-mopped asphalt installation techniques when installing roofs may qualify for the following LEED Credit (www.usgbc.org): Indoor Environmental Quality Credit 4: Low-Emitting Materials (LEED for Healthcare).</p>	Consider asking supplier to provide a list of self-adhering, cold adhesive, torch-applied, or heat-weldable membranes and installation techniques.
Volatile Organic Content	Does the supplier offer adhesives, sealants, coatings, roofing, and waterproofing materials that meet the VOC limits of the South Coast Air Quality	Y/N. Y=Supplier offers adhesives, sealants, coatings, roofing, and waterproofing materials that meet the VOC limits of South Coast Air Quality Management District (SCAQMD) Rule 1168 (effective July 1, 2005) and California Air Resources Board (ARB) 2007	Yes	<p>Volatile Organic Compounds (VOCs) cause smog and poor indoor air quality. South Coast Air Quality Management District has some of the strictest VOC regulations in the country for adhesives and sealants. See South Coast Air Quality Management District, http://www.arb.ca.gov/drdb/sc/cur.htm The California Air Resources Board has issued guidance for local air quality management districts in California on restricting</p>	Consider asking supplier to provide a list of the adhesives, sealants, coatings, roofing and waterproofing materials it offers that meet the VOC limits of South Coast Air Quality Management District

	<p>Management District Rule 1168 (effective July 1, 2005) and California Air Resources Board (ARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings? (Yes/No)</p>	<p>Suggested Control Measure (SCM) for Architectural Coatings. N = Supplier does not offer adhesives, sealants, coatings, roofing, and waterproofing materials that meet the VOC limits of South Coast Air Quality Management District (SCAQMD) Rule 1168 (effective July 1, 2005) and California Air Resources Board (ARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings.</p>	<p>VOC emissions on exterior applied products such as roof coatings. For more information, visit http://www.arb.ca.gov/coatings/arch/Approved_2007_SCM.pdf</p> <p>LEED Credits-Using products that meet SCAQMD Rule 1168 (effective July 1, 2005) and California Air Resources Board (ARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings can help facilities qualify for the following LEED Credit (www.usgbc.org): Indoor Environmental Quality Credit 4: Low-Emitting Materials (LEED for Healthcare).</p>	<p>(SCAQMD) Rule 1168 (effective July 1, 2005) and California Air Resources Board (ARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings.</p>
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