

The RoHS Directive: What it means for the U.S. Construction Market.

The booming construction market in the United States has spawned an increased awareness of the environmental impact of today's new builds. With an estimated 118 billion buildings in the States by 2010, there has been widespread adoption by the architectural community, building owners and construction professionals of design initiatives that produce sustainable, high performance buildings that minimize the negative impact on public health and the environment. Savvy designers are always looking for products or technologies that can contribute to sustainable design when used effectively. More significantly, there has been a tremendous amount of recent media attention drawn to environmental issues such as global warming and pollution that has opened the eyes of the public and rippled across governmental entities. The U.S. Green Building Council's LEED program (*Leadership in Energy and Environmental Design*), has given specification guidelines for designers to focus on to achieve "green" initiatives within the built environment. Reducing environmental impacts, maximizing energy efficiency, and conserving natural resources are all major aspects of LEED. LEED awards points toward multiple levels of "green" certification for designs that meet the LEED criteria. In one category, Materials and Resources (MR) Credit 5, LEED allows points for products that are made with recycled content. Recycling has been mainstream for decades but a new development is making its way onto the environmentally conscious scene: RoHS, (Restriction of Hazardous Substances), a directive established by the European Union that went into effect in July, 2006.

Details

RoHS traces its beginning back in 2003, when the European Union's twenty-five member states first adopted this directive. Research conducted by the EU's environmental collaborative in the late 1990's revealed that large amounts of hazardous waste was being dumped into landfills across Western Europe. Shortly thereafter, they put the ball in motion that would lead to the current RoHS directive. It took effect on July 1, 2006, but is not a law; it is simply a directive, but a popular one nonetheless. This directive drastically reduces the permitted amounts of six hazardous materials in the manufacture of various types of electronic and electrical equipment. Another recent environmental initiative from the EU is WEEE (the directive of Waste Electrical and Electronic Equipment), which took effect in August, 2005, and is designed to minimize the waste stream of electrical and electronic equipment and complements the EU measures on landfill and incineration of waste. The targeted substances include the restriction of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ether (PBDE). PBB and PBDE are flame retardants used in some plastics and lead and mercury are often found in electronic and electrical equipment. Trends suggested that the toxic waste stream would only escalate, creating a massive, growing source of contamination. This caused the EU to take the measures to clamp down on these hazardous substances. While adoption and compliance has been widespread, each European Union member state can adopt its own enforcement and implementation policies using the directive as a guideline. Therefore, there could be many different versions of the directive in use throughout the EU.

Moving towards Global Compliance.

At the end of February, 2006, China instituted a law entitled, “Administration on the Control of Pollution Caused by Electronic Information Products.” This law has the same goal as the EU’s RoHS; in fact, it’s commonly referred to as “China RoHS”. One of the key similarities between the EU’s directive and China’s RoHS law is the list of substances that are restricted. Japan, South Korea, Taiwan, Australia, and Canada have adopted or are poised to adopt similar restrictions on electronic and electrical components. Closer to home, nearly 30 U.S. states, lead by California, are considering RoHS like restrictions.

The Impact of RoHS in the United States.

Buildings are a significant source of air pollution, greenhouse gas emissions and other environmental and public health, safety and welfare issues. While striving for high performance buildings that achieve sustainability and green initiatives throughout the buildings life cycle, designers have embraced the convergence of technology and design. Today’s new builds incorporate an ever-changing variety of technologically advanced products that facilitate green design efforts and sustainability. Information technology, audiovisual, security, and communication products and systems are prevalent in virtually every building and are often considered fundamental within the built environment. These various building components are selected and specified with occupational health, safety, welfare and productivity in mind and are implemented into a design where people and productivity can thrive and building performance is achieved in the most environmentally friendly way possible. As RoHS becomes more mainstream in the United States, and it is definitely on the rise, the impact of this globally instituted directive can be of significant importance in our future. Technology products that are included in the RoHS directive include the following:

1. Large appliances (plasma screens, LCD panels, and CRT monitors)
2. Small household appliances (DVD and VHS players)
3. IT & telecommunication equipment
4. Consumer equipment
5. Lighting and lighting equipment
6. Electrical and electronic tools
7. Electric light bulbs and luminaries

Architects, engineers and interiors people all routinely specify many of the above referenced products in designing a space and these products are widely used anywhere people get together to learn, work or meet. Personal, mainframe and laptop computers, telephones, facsimiles, copying equipment, video cameras, and a wide variety of audiovisual and electronic signal processing equipment fall into categories targeted by RoHS. Now that California is paving the way for these initiatives here at home, the design community, building owners, developers, building product manufacturers and government agencies are going to need to acknowledge the impact of this directive. With more and more states proposing similar regulations, it's going to be challenging to keep up to speed with the various changes and exceptions to the EU's RoHS. The EU's version applies to "electrical and electronic equipment," which is defined, in part, as "equipment which is dependent on electric currents or electromagnetic fields in order to work properly, and equipment for the generation, transfer and measurement of such currents and fields..." China's RoHS law is based on the EU's, but adds and omits portions. Other variations exist elsewhere. For example, California's RoHS regulation, which took effect in January of this year, applies to "covered electronic devices" such as plasma screens, LCD panels and portable DVD players. Tremendous amounts of toxic materials from these common electronic components are being dumped into landfills across the country. In an effort to emphasize the ecological impact of these hazardous substances, the UK's Royal Society of Arts, in conjunction with Canon, created a 7 meter tall sculpture made from 3.3 tons of electrical goods – the average amount of electrical waste one British citizen creates in a lifetime. The giant figure was erected on London's South Bank in 2005.

Building Product Manufacturers

In the eyes of an architect, engineer or interior designer, a vendor of building components is considered to be a Building Product Manufacturer, a BPM. A BPM provides products that are vital to the structural scope of a building, as well as products that are critical to the performance and sustainability of that building. These products can also greatly benefit the health, safety, welfare and productivity of a building's occupants. A BPM's interest in recognizing the importance of the growing RoHS initiatives are twofold; they need to be aware of the impact here in the United States and also over in Europe, China, Japan and other countries around the world that are embracing RoHS. Any product entering the European Union must be in compliance and a myriad of US manufacturers have product that is made in part or entirely manufactured in China. If a product is being marketed in the EU, it is impacted by RoHS. For some BPM's, Europe is an important and growing market, so RoHS compliance is considered to be a worthy strategic investment. Sales objectives for many manufacturers could have major financial implications that are essential to technology business competitiveness.

RoHS Compliance in Design & Technology

IT and audiovisual products are found everywhere in buildings that strive to blend cutting-edge technology and design. These products are profoundly impacted by RoHS and similar regulations. Environmental issues in the audiovisual industry, for example, are particularly broad. Imagine the amount of electronic equipment that requires batteries, large and small, that can be impacted by RoHS. In California, AA batteries, AAA's and 9-volts all need to be shipped to a state-licensed recycling center now, throwing them out is not an option anymore. Lead solder is widely used in electronic circuitry and today's RoHS regulations restrict that process. This is a big concern for many BPM's because using a lead-free process requires the purchase and installation of new assembly lines, new equipment and additional personnel and training. While some companies are holding off as long as possible to become compliant, others realize that sooner or later, RoHS is going to impact their business. FSR, Inc., a New Jersey based BPM that makes audiovisual equipment and cable management devices, uses not only recycled content for their floor, wall and table boxes, but have already made great strides to be RoHS compliant with lead-free processing requirements. Jan Sandri, President of FSR says, "FSR uses the maximum recycled metal percentage allowed and available in our steel and aluminum purchases. All of our electronic signal processing products are manufactured using a lead free process. FSR has invested heavily in new equipment, components and manpower to do our part for a clean environment and we're proud to be among the first in our industry to be RoHS compliant." The ramification of RoHS is having a ripple effect throughout the electronics industry. Various components of electronic goods are purchased from suppliers that may not be compliant, and that can have a profound effect on manufacturers of electronic products that are moving towards compliance as these environment regulations become more and more prevalent here in the U.S. Some multidisciplinary architectural firms offer audiovisual and technology consultation in addition to planning, interiors, landscape and other aspects of design. RTKL, a Baltimore based architectural firm with locations across the country, is bracing itself for the RoHS impact. Tony Warner, who heads up RTKL's Technology Division, is preparing for regulation enforcement. "While our involvement has been minimal on the audiovisual front overseas, where RoHS has had the biggest impact, we have not felt much of its influence here to date. However, given its recent adoption in California, we fully expect to be dealing with this domestically in the immediate future and have been watching developments with a critical eye."

Indeed, RoHS, in one form or another will soon spread across our country. While some may be reluctant to accept this, the ecological implications of these regulations can only be positive and beneficial to us and our future around the globe.

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