



INFOGRAPHIC //

The Green Hospital

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U.S. hospitals are feeling the pressure to go green, both from eco-conscious donors and government agencies' increasing oversight of pharmaceutical waste disposal and other practices. Though building new facilities and retrofitting old ones to be eco-friendly pose economic and operational challenges, studies show benefits not only for the environment but also for workers (reduced stress), patients (shortened stays) and the bottom line (lower energy bills). Here are a few features of the green hospital.

ROOF GARDEN // An eco-roof **1** creates a wildlife habitat, absorbs heavy rainwater and adds insulation. It also offers a space where patients and staff can reconnect with nature and relieve stress.

FEWER CONTAMINANTS // Hospitals have inadvertently contributed to illness by exposing patients and staff to a host of toxins. To decrease exposure, hospitals are seeking out upholstery **2** and mattresses that lack flame retardants, which have been found to cross the placenta and accumulate in human breast milk; replacing mercury-containing devices such as thermometers with safer alternatives; and recycling fluorescent lamps, which also contain mercury.

They also use formaldehyde-free insulation **3** and wood materials and green cleaning products **4** (normal types release hazardous fumes that could affect patients' vulnerable immune systems). To ensure that patients are breathing the highest-quality, healthiest air, the air is triple-filtered **5**.

EXPOSURE TO NATURAL LIGHT // Direct views of nature **6** from such areas as lobbies and labs have been shown to reduce stress levels in hospital workers, improving quality of care. Patients benefit too.

REDUCED WATER USAGE // Water-efficient toilets, urinals and faucets **7**, as well as other measures, are

estimated to have saved the Veteran Affairs Hospital in Portland, Ore., \$74,000 in water bills each year. Oregon Health & Science University's Center for Health & Healing uses 500,000 gallons of rainwater each year for toilet flushing, saving about 10% of its total water demand.

GREATER ENERGY EFFICIENCY // Many facilities are installing low-energy fluorescent bulbs to save on lighting, a major chunk of their electricity bills (about 40%, on average). Some have installed ground-source heat pumps **8**, which tap the stored energy of the earth. The Patrick H. Dollard Discovery Health Center, in Harris, N.Y., estimates that this system is helping it to

achieve a 30% energy savings. Solar panels—and even window shades with integrated photovoltaic panels **9**—can offset some electricity costs. Chilled beam modules, in which cold water circulates through ceiling pipes, keep rooms cool, lowering energy consumption.

MORE QUIET // Patients' No. 1 complaint about hospitals is noise (food is second). Research has shown that poor acoustic design can lead to nursing errors. Acoustic control and privacy measures include better insulation between rooms **10**, back-to-back restrooms **11**, the use of vibrating pagers and quiet fans, and the location of mechanical rooms far from patients. ■