

# Green Buildings

*Detailed Specifications Chart LEED Certification*

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It is generally accepted that in order to be considered a “green building,” the building must earn a Leadership in Energy and Environmental Design (“LEED”) rating from the U.S. Green Building Council. The process of obtaining LEED certification for a green building involves, essentially, earning credits necessary to achieve the desired rating level, i.e., certified, silver, gold or platinum. The rating ultimately awarded is based on the number of credits achieved.

The starting point in the LEED certification process is the establishment of objectives by the owner, in consultation with its architect and LEED consultant, and the selection of the particular rating to be achieved. The criteria for that rating are then incorporated by the architect into the drawings and specifications, for implementation by the contractor.

In order to gain a better understanding of the construction requirements necessary to achieve a LEED certification, it is helpful to examine certain guideline specifications which have been prepared by green building consultants and which are now becoming standard in green building projects. (See <http://www.buildinggreen.com/guidespecs/index.cfm>.)

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### CONSTRUCTION LAW

#### Sustainable Design

The green building guideline specifications are organized into four sections of Division 01 in the hierarchy of specifications established by the Construction Specifications Institute. Section 01 81 13, entitled “Sustainable Design Requirements” (the “SDR section”) includes general requirements and procedures for achieving the design goals of the project and identifies design elements and products which will yield LEED credits. Examples of these elements and products are roofing materials, lighting fixtures, irrigation systems, water conserving fixtures, low-water consumption equipment, Energy Star equipment and appliances, renewable energy-generating components and equipment, salvaged and reused materials and low VOC contents and coatings.

Water conservation is a major component of a green building and the SDR section provides detailed requirements for plumbing fixtures and fittings resulting in reductions

in customary water usage. Another essential element of a green building is the use of recycled materials and the SDR section directs the use of building materials with minimum recycled contents. The use of regional materials, that is, materials procured within a 500-mile radius of the project, also results in LEED credits and the SDR section requires that a minimum of 20 percent of building materials (by cost) are manufactured and extracted or harvested within that radius.

Given the deleterious effect adhesives and sealants can have on health, the SDR section provides limits for VOC content on a host of materials ranging from concrete curing compounds to roof membrane adhesives, and prohibits the use of mercury, butyl rubber and neoprene from interior sealants. Likewise, the SDR section provides that paints and coatings must comply with specific limits for VOC content. Fungicides and biocides are banned entirely from inclusion in interior paints.

The SDR section also contains guidelines for indoor air quality management during the construction process. The contractor is required to develop and implement a Construction IAQ Management Plan to prevent indoor air quality problems resulting from construction activities. During construction, the contractor must protect all absorptive materials stored on site or installed from moisture damage as described in the IAQ Management Plan. Among other things, the contractor must exercise special care to prevent exposure to moisture; avoid installation of gypsum wall board until the building is weather-tight; remove all standing water accumulating on interior floors on the day

it is observed; and identify and remove all porous building material that become wet or damaged within one week of exposure. The contractor is also required to provide the architect with photographs of IAQ management measures (such as protection of ducts and installed materials).

During the course of construction the contractor must install air filtration media in air handling units for processing both return and outside air that is delivered to the air supply system and replace all filtration media after the completion of construction and prior to occupancy. Finally, the contractor must engage an independent testing and inspecting agency to conduct a baseline indoor air quality testing program after completion of construction.

The LEED certification process is document intensive and the SDR section provides detailed requirements for submittals by the contractor. For example, the contractor must

- provide manufacturer's cut sheets for all water-consuming commercial equipment, highlighting water consumption performance, including manufacturer's cut sheets or product data for any cooling towers, highlighting water consumption estimates, water use reduction measures, and corrosion inhibitors;
- provide manufacturer's cut sheets for all fire suppression equipment, highlighting fire-suppression agents;
- provide manufacturer's cut sheets for all bike racks installed on site, including the total number of bicycle storage slots provided; and
- provide manufacturer's cut sheets for any alternative-fuel refueling stations installed on site, including fueling capacity information for an eight hour period.

From the contractor's standpoint, this level of detail can become burdensome; however, it is essential that this documentation be submitted so that the architect or LEED consultant can include the material in the LEED application. The failure of the contractor to comply with the SDR section or any other section of the specifications should be treated as any other default would be treated, and it would not be inappropriate to make deductions from the contractor's requisition until there is compliance with the specifications.

## Waste Management

In addition to earning LEED credits for the installation of products and equipment out-

lined in the SDR section, the contractor is responsible for LEED credits relating to construction waste management and the recycling of materials under Section 01 74 19 "Construction Waste Management" (the "CWM section") of the guideline specifications.

The CWM section includes administrative and procedural requirements for salvaging, recycling and disposing of non-hazardous demolition and construction waste. The contractor must prepare and submit a Construction Waste Management Plan (the "CWMP"), which includes procedures for recycling and reuse programs designed to divert construction and demolition waste from landfill disposal sites. The CWMP must consist of waste identification, a waste reduction work plan and a cost/revenue analysis.

The CWMP must be separated into plans for demolition and construction waste. The reduction work plan must list each type of waste and whether it will be salvaged, reused, recycled, or disposed of in landfill or by incineration. Detailed means of handling and transportation must be set forth, covering salvaged materials for reuse, sale or donation; recycled materials; and disposed materials. The CWMP must provide for handling, containers, storage, signage, transportation and other items required to implement the plan during the course of construction. The contractor must engage a waste management coordinator to be responsible for implementing, monitoring and reporting the status of the CWMP, and the coordinator must be present at the project on a full time basis. The contractor must also train workers, subcontractors and suppliers in proper waste management procedures, and distribute the plan to all subcontractors.

The CWM section requires the contractor to conduct waste management operations to insure minimum interference with roads, streets, walks, walkways and other adjacent occupied and used facilities. The contractor must designate and label specific areas on the site necessary for separating materials that are to be salvaged, recycled, reused, donated and sold. The contractor is further required to maintain recycling and waste bin areas neat and clean and clearly marked in order to avoid contamination of materials. Finally, hazardous waste must be separated,

stored and disposed of according to local requirements.

Detailed procedures for salvaging demolition waste are also provided by the CWM section. Separate recyclable waste must be separated from other waste materials, trash and debris. The contractor must provide appropriately marked containers or bins for controlling recyclable waste until removal from the project site. The CWM section provides detailed guidance as to how demolition waste is to be recycled, listing different methods for materials and fixtures, including concrete, masonry, wood, metals, carpet, equipment, plumbing fixtures, lighting fixtures and conduits.

Likewise, the CWM section provides detailed procedures for the recycling of construction waste, packaging, site-clearing wastes, wood materials and gypsum board. Finally, the CWM section provides for the disposal of materials that cannot be salvaged, recycled or otherwise reused.

As in the SDR section, the CWM section lists detailed submittal requirements, including the submission of the CWMP, waste reduction progress reports, waste reduction calculations, records of donations and sales, recycling and processing facility reports and landfill and incinerator disposal records.

## Conclusion

The LEED certification process is as heavily marked by sustainable construction practices as it is by sustainable design. Those construction practices are found in the specifications, and strict compliance is essential to achieve the desired LEED certification.