

## Sustainable Master Planning Attracts a LEED® Gold Facility

### Sustainable Solutions

#### Client

CB Richard Ellis & MEDRAD, Inc.

#### Location

Warrendale, Pennsylvania, USA



“MEDRAD was in many ways an ideal client, fair, collaborative, and cost conscious while aware of the value that good design can bring to their culture and productivity”

— Jeff Murray, CH2M HILL  
MEDRAD Principal Designer

CH2M HILL created an environmentally sensitive master plan MEDRAD, Inc. that preserved the topography and natural amenities of its headquarters site.

Western Pennsylvania’s “Technology 21” Research Park (Tech 21), envisioned as a technology community housing a collection of “new economy” research and office facilities, is located in a hilly, wooded, environmentally sensitive greenfield. The original master plan (by a different firm) cut down the forest, chopped off hilltops, and filled in valleys, thereby erasing the area’s natural beauty. The local community opposed the plan, and it was rejected.

CH2M HILL introduced a more viable approach, creating an environmentally sensitive master plan that preserved the topography and natural amenities of the site. The new scheme offered a better financial profile, because earthwork costs were significantly reduced.

When our team learned that MEDRAD, Inc., a fast-growing maker of medical devices, was seeking a Western Pennsylvania location for its new corporate headquarters, we proposed the Tech 21 Research Park in Warrendale, Pennsylvania.

It provided the natural setting that MEDRAD wanted and an ideal location for MEDRAD’s sustainable facilities. With CH2M HILL’s help, MEDRAD achieved Leadership in Energy and Environmental Design®(LEED®) Gold certification for the facility without increasing the budget. In fact, many sustainable strategies saved money. For example, we eliminated column covers and ceilings in many areas, thereby reducing material consumption.

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and productivity,” said CH2M HILL’s Jeff Murray, principal designer on the project.

Completed in early 2007, the 12,000-square-meter (125,000-square-foot) headquarters building takes advantage of the rugged terrain by stepping down the hillside, with dramatic views into the existing forest. The energy-efficient design includes under-floor air supply, natural daylighting that reduces the use of artificial lighting, and open-planned offices that encourage team work and collaboration.

### Sustainable Components

- An automated state-of-the-art lighting control system provides an energy efficient and flexible lighting system. Dimming ballasts are provided in each linear direct/indirect lighting fixture. Dimming ballasts are digitally linked in a “network” connected to a centralized lighting control system that communicates with the Building Automation System. Daylight sensors monitor lighting to reduce output based on ambient light entering the space. Occupancy sensors reduce pockets of lighting when the space becomes unoccupied. The system reduces the lighting energy consumption by approximately 30 to 55 percent.
- Additional sustainable design features include under-floor air supply to the office area, with individual control of air flow direction, and the use of ultra efficient air-handling equipment that includes heat recovery features.

- The design reduced the overall usage of raw and manufactured materials, by eliminating 90 percent of the sheet metal used for ductwork, used open ceiling areas, and exposed structural elements throughout. The design maximized the use of materials with high recycled content and without high concentrations of volatile organic compounds (VOC). The building was sited to save as many trees as possible; however, some that had to be removed were salvaged, sent to a local saw mill, and fabricated into woodwork that was used in the building's atrium cafe.
- A cost-effective but high-performance building envelope system was custom designed for MEDRAD, using a manufacturer's standard system in an unconventional way to improve

thermal performance and moisture control effectiveness. The system incorporates protected air and moisture barriers, and applies rain screen principles. The building is provided with a cool roof, to reduce heat island effect, and is designed so that it could be converted to a vegetated roof in the future.

- Water usage is managed through efficient plumbing fixtures. The landscaping is 100 percent native plants, and no irrigation system is required.

The new facility reflects MEDRAD's commitment to environmental stewardship and energy conservation, while increasing employee productivity and satisfaction.

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