



**LEED Certification
Contributions
by
Hi-Tech Tilttm Wall System**

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The United States Green Building Council (USGBC) has been promoting "green" practices for many years. Green practices include using recycled materials in construction, providing erosion control on building sites, limiting site disturbance, and reusing buildings and building components, as well as minimizing energy consumption. The purpose of this paper is to explain the significance of using Hi-Tech Tilt™ ("HTT") Wall System and to highlight items on the LEED™ Checklist where "HTT" can help LEED™ practitioners obtain points toward LEED™ Certification.

Section 1: Sustainable Site.

Under this section, HI-TECH TILT™ can have impact on Credit 5.1, Reduced Site Disturbance, since the use of HI-TECH TILT™ Wall System does not require a large use of space on site. Tilt up panels can be constructed directly on the floor slab within the building footprint; precast panels are manufactured off-site and shipped to the building location, while poured-in-place construction only requires enough space for access by a concrete truck and forms.

Section 2: Energy & Atmosphere.

The first two prerequisites for this section are Fundamental Building Systems Commissioning and Minimum Energy Performance. To satisfy these two prerequisites, "HTT" provides installation drawings for HI-TECH TILT™, technical assistance in thermal design, and guidance in detailing or specification to minimize thermal bridges. We provide a wall system that can meet/exceed ASHRAE Standard 90.1 and/or energy requirements of local building codes as well as the wall system's documentation of energy performance simulations.

Credit 1 deals with optimizing energy performance, this is a primary goal of the HI-TECH TILT™ Wall System. Teaming with the design team, we can help in reduction in loads, peak energy usage and thermal efficiency of HI-TECH TILT™.

HI-TECH TILT™ provides documentation and detailed drawings to ensure the correct installation and use of the wall systems. This can include eliminating thermal bridging through the insulation layer. This provides help toward Credit 3, Additional Commissioning.

3. Materials & Resources:

This section of LEED™ mainly focuses on recycled content in materials and reduction of waste.

HI-TECH TILT™ panels are strong, long-lasting wall components. Therefore we provide a building shell that is durable in many service applications. During the reconstruction or expansion of a building there is no reason to replace a HI-TECH TILT™ wall due to old age. These panels can be reused in the new building or can maintain a complete shell of a building for a second use. Because of the nature of tilt and precast panels, they can even be relocated to another job site and commissioned into a different building, producing no waste from the wall systems. These characteristics help obtain Credits 1.1 & 1.2.

The reinforced concrete used to manufacture the panels may contain recycled content, depending on local conditions and producers. These two items help in getting Credits 4.1, 4.2, 5.1 and 5.2. These credits refer to the use of recycled content in the building products and the use of regional materials.

Common recycled components within concrete include fly ash and aggregate while the reinforcing steel used within the panels normally comprises 100% recycled steel.

The structural steel studs used in the HI-TECH TILT™ Wall System contribute in achieving Credits 4.1, and 4.2. These credits refer to the use of recycled content in the building products. Light Gauge Steel Framing typically exceeds 10% and 20% goals.

4. Environmental Quality:

HI-TECH TILT™ can contribute three credits in 3.1, 5 and 7.1. The wall system construction produces no dust or airborne contaminants during construction and also does not allow moisture to be absorbed into the insulation of the panel, contributing to Credit 3.1.

HI-TECH TILT™ panels can be fabricated as a thermal sandwich panel with rigid insulation and high mass concrete walls on both finishes. Thermal breaks limit or eliminate the transmission of moisture through the envelope, which eliminates condensation on the wall surfaces. They also contain no consumable material within the wall which contributes to the propagation of mold, a growing liability in the construction industry. This mitigation of mold, an airborne contaminant, helps to obtain Credit 5. The use of high mass walls provides a much more comfortable environment than standard lightweight construction. This is achieved by eliminating cold or hot spots in the occupant zones and by maintaining wall temps at or near the interior operating conditions. By helping to control occupant comfort, HI-TECH TILT™ walls can also help obtain Credit 7.1.

5. Innovation & Design:

HI-TECH TILT™ contributes points in this category by demonstrating the effort to go above and beyond the energy and design requirements of the LEED™ green building rating system. HI-TECH TILT™ is designed to perform above all standards currently in place helping designers effectively create buildings that not only perform well above minimum standards, but also become the benchmark for competitors to achieve. Use of massive wall systems for energy storage helps to lower the peak energy use of buildings and shift power usage to off-peak times. This allows A/C and refrigeration systems to operate during times where the temperature difference at the exterior heat exchanger is greater, thereby providing a more efficient system and more cooling capacity during those periods. The design teams are then able to design and implement innovative control systems for the HVAC system in the building.

Another HI-TECH TILT™ innovation contribution is the reduction of weight as compared to traditional concrete tilt wall systems. With 2/3 weight reduction in the wall system, hundreds, even thousands of Cubic Yards of concrete can be eliminated from the wall system and the foundation. Additional wall framing or furring systems are eliminated from the project. Reinforcing steel is greatly reduced, the wall system is produced in 20% of the time, the building is in the dry, and total project time can be substantially reduced. Cumulatively, this consumes much less fuel for product delivery to the site, much less labor for installation and erection. All of these reduce pressure on the environment.

In conclusion, the use of the HI-TECH TILT™ Systems can be very helpful to the designers of 'green' buildings. Whether it is used for LEED™ Certification or not, HI-TECH TILT™ is an efficient, high quality building component intended for sustainability and environmental preservation.