Calvary United Methodist Church, Latham, NY

How Green Is Our Addition and Renovation Project?

Overall Building

The building was designed to minimize the exterior wall area. In fact, the addition actually *reduced* the amount of exterior wall area, reducing heat loss through exterior walls.

Construction Debris

A significant amount of the demolition and construction debris was diverted from landfill disposal. Recyclable resources were recovered and redirected back to the manufacturing process.

Reused Building Materials

The windows in the new addition were salvaged from the existing building. Brick walls and concrete columns from previous constructions were left exposed, rather than covered with new materials. Reusing or retaining original building components reduces demand for virgin materials and reduces the impacts associated with the extraction and processing of virgin resources.

Building Structure

Concrete was used for the floor slabs, foundations and footings. The concrete contains fly ash, a waste product from coal-fired power plants. In addition the building uses an insulated shallow foundation resulting in significantly less material than traditional foundation systems.

The infill addition uses a steel frame. The overall recycled content of steel products in the US is 46%. In the future, the material is readily recyclable because it is easily separated at the demolition site and has a ready market.

The wood beams used in the renovated areas are made from engineered wood. Engineered wood can be made with smaller diameter, lower quality logs and low strength, fast growing tree species. These products enhance quality control while reducing pressure on remaining old-growth forests.

Skylights

Three large skylights have been installed in the Gathering Space. In addition to providing a connection to the outdoors by introducing daylight, the skylights help to reduce lighting energy use.

Insulation

The amount of insulation far exceeds the amount required by the energy code. In some cases R-values as high as R-50 have been achieved. This insulation reduces the gas consumption for heating in the winter and the electrical consumption from cooling in the summer.

Ceiling

The ceiling tiles used in the Gathering Space contain 72% recycled content and the material can be recycled again in the future.

Paint

Paint used in the project is Benjamin Moore EcoSpec. This paint is specially formulated to have virtually no VOC's. This helped to reduce odor during construction in a building that remained partially occupied throughout the construction period.

Carpet

The carpet was selected because it has very low VOC content. It meets the exacting Green Label Plus standard.

Walk off mats are provided at the new lower level entrance. Much of the dust and dirt in a typical building comes from people's shoes. The simple provision of a walk off mat in the building entryway improves air quality by greatly reducing dust and dirt.

Plumbing Fixtures

Most of the toilets that were installed use 1.28 gallons per flush (GPF). This is 25% less water consumed compared to the baseline that the EPA has established. The urinal in the Men's Room uses no water at all. The faucets use only .17 gal per cycle, which is 32% less than the EPA baseline. In addition, the faucets turn off automatically to ensure they will not be left on. They are powered by mini-turbines that store the energy from the running water so that no external power is required.

Heating and Cooling Controls

A new digital temperature control system provides individual controls for most of the spaces. This provides a thermally comfortable environment that supports the productivity and well being of building occupants.

Ventilation System

The three new heating and cooling systems are equipped with an economizer option that allows fresh air to be distributed throughout the building. The air conditioning units can be programmed to provide cool nighttime air to the building thereby conserving energy by reducing the need to run air conditioning.

Electrical Components

Using a room by room calculation for recommended power densities or watts per square foot, the average watts per square foot is at least 10% less than what is recommended by the New York State Energy Code. All new illuminated exit signs use ultra-energy efficient Light Emitting Diodes. The electrical design incorporates ceiling and wall mounted motion sensors to automatically shut off lights and exhaust fans when rooms are unoccupied. Various electrical components qualify for NYSERDA rebates.

On-site Stormwater Management

The rainwater is collected from the roof and directed to the rear of the site. It is not added to the burden of the municipal storm water system. The collected water is distributed onsite where is it is allowed to be filtered naturally by the environment. By managing the stormwater runoff, the disruption and pollution of natural water flows is limited.

Bicycle Storage

Bicycle racks will be provided to encourage the reduction of pollution and land development impacts from automobile use.