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Harleysville Savings Bank Souderton Branch

GREEN BUILDING ELEMENTS INCORPORATED INTO DESIGN

Insulated Concrete Form (ICF) Building Envelope

The exterior walls will be constructed using an insulated concrete form system. This form system consists of a two Styrofoam panels which are held apart with plastic spacers that readily accept reinforcing steel at predetermined locations. The Styrofoam panels lock together like Lego blocks and the reinforcing steel as snapped and dropped into place, and then the core is poured with concrete. This system, when complete, provides a wind tight exterior enclosure which greatly reduces wind infiltration and associated heat loss by reducing uncontrolled conditioned air exchange within the building.

The concrete core of the ICF system also provides a thermal sink. This provides a more comfortable interior space by greatly reducing temperature swings within the building. These thermal sinks in actuality aid in increasing the insulating performance of the exterior wall. Although the calculated insulating value is only R-20, the overall tested performance tests out at R-values in excess of R-40. This also aids in reducing the heating and cooling requirements for the lifetime of the building.

Provides a tight exterior enclosure which greatly reduces wind infiltration & associated heat loss by reducing uncontrolled conditioned air exchange within the building.

The ICF product is manufactured from a high percentage of post-consumer product. Due to the construction process utilizing Styrofoam forms, and concrete, the system has proven to be effected little by exterior weather and temperature conditions. This allows construction to continue in the most adverse winter and summer weather conditions. In addition, the system has been proven to aid in reducing the actual overall building construction schedule to provide quicker building occupancy.

The ICF system also provides an interior which has a reduced exterior noise level, and provides a more comfortable work environment. This environment increases worker productivity and increases customer satisfaction.

Geo-Thermal Heating and Cooling System

Geo-Thermal Heating and Cooling Systems rely on the constant temperature of the ground to provide a constant means of temperature exchange for the Heating Ventilating and Air Conditioning (HVAC) systems. By exposing the HVAC system to a constant temperature source the operating efficiency can be greatly effected. A typical Geo-Thermal HVAC system can reduce operating costs by 30%, or greater.

The geo-thermal system for this project consists of six 300 foot deep thermal loop borings. These thermal borings will contain a closed loop plastic pipe system designed to transfer/extract BTU's between the loop system and the ground via circulated water within the pipe loop to provide a constant 55 degree temperature to the HVAC heating and cooling equipment throughout the entire year. The geo-thermal HVAC units are available in a variety of output sizes, and especially in low output sizes which allow the building to be zoned into smaller sections. The more zones, and the smaller the sections affords two advantages over conventional HVAC systems. 1) The smaller the zones the better the temperature control within the building due to building solar orientation, occupancy levels, equipment loads, etc.; 2) The smaller and greater the number of zones allows for more incremental use of the HVAC equipment to aid in reducing energy consumption by reducing the need to run large equipment to provide heating/cooling to satisfy a very limited need.

A typical Geo-Thermal HVAC system can reduce operating costs by 30% or greater.

The payback of a typical geo-thermal system has been six to seven years under normal operating conditions. In the more recent years, with the rapid escalation of fossil fuels, this payback period has been greatly reduced.

Zero Use Of CFC-Based Refrigerants

HVAC equipment uses no CFC refrigerants which deplete the Ozone.

High Output, Low Wattage Lighting System

The lighting system is designed to limit the consumption of electric to one watt per square foot of building area, and satisfactorily provide the minimum foot candles within the building for the tasks to be performed. Lighting fixtures with unique photo metrics properties are to be utilized.

Automatic light control and dimming system

The building is equipped throughout with an automatic light control and dimming system. Spaces are equipped with occupancy sensors which will turn lights on and off based on occupancy. In addition, the lights will be dimmed to appropriate levels for optimum foot candle levels based on exterior natural light input into the space to reduce electric consumption.

To reduce electric consumption the lights in each space are automatically dimmed to appropriate levels based on the exterior natural light entering the space at any given time.

Energy Efficient Fresh Air Recovery System

The building codes require the infusion of fresh air into a building. To accomplish this an exhaust air system is designed to remove air and exchange the temperature of the condition air with the incoming air to reduce the need to heat or cool additional air with the HVAC system.

Naturalize Basin Storm Water Recharge System

Storm water basin is designed to promote bio-diversity, and to aid in the recharge of the ground water system, by reducing the water runoff from the property. The basin is designed to allow storm water to be filtered to reduce contaminants by using native wetland plant material, and encourage the percolation of storm waters into the soil rather than run off the property.

Exterior Light Pollution Reduction

Exterior lighting of parking areas are designed to minimize the light trespassing from the building and site to reduce sky-glow.