

A.5 POLYSTEEL AND THE ENVIRONMENT

A PolySteel Form is one of the most environmentally friendly, sustainable, and “green,” building materials you can use today. From the initial manufacturing process through decades of energy-saving performance in the field, PolySteel Forms provide a variety of benefits to our environment.

- ✓ Expanded polystyrene (EPS) is the largest volume component of a PolySteel Form. Derived from petroleum, EPS is most familiar as the material used for temporary packaging, ice chests, and food or beverage containers. While EPS is very suitable for recycling, the large majority of these products tend to end up in landfills as waste material within weeks or months after it has been produced. When used as insulation in a PolySteel Form, however, the useful life of EPS can extend into hundreds, if not thousands, of years as a permanent part of a structure. When EPS is used in this way (as insulation), over 150 times the energy used to produce it is returned in energy savings in less than 50 years. It is our view that the EPS used in PolySteel Forms is one of, if not the single highest and best use of one of our most precious and limited resources (petroleum).
- ✓ The steel used in PolySteel Forms comes from recycled materials and is, itself, highly recyclable.
- ✓ There are no CFC's (Chlorofluorocarbons), or HCFC's, used or emitted during the manufacturing process of PolySteel Forms. The release of CFC's has been linked to the destruction of the Earth's protective ozone layer and an increased incidence of skin cancer.
- ✓ The structural strength of PolySteel buildings comes from reinforced concrete—portland cement, sand and gravel, of which the Earth has in abundant supply. This directly reduces the use of lumber for construction, thereby helping to save the world's forests. Concrete is also produced locally, minimizing the energy costs used to transport this building material to the job site. While concrete is more resource intensive during its manufacture, as with EPS, when it is used as a structural wall system it begins to pay environmental dividends in as few as 7 years.
- ✓ The recommended use of fly ash in the PolySteel concrete mix reduces the need for cement and responsibly recycles this industrial byproduct.
- ✓ The expanded polystyrene insulation, thermal mass of the concrete walls and the resultant reduction in air infiltration provided by PolySteel walls, creates structures that are super energy efficient. This energy efficiency minimizes the amount of fuel burned for heat, saving our oil and gas reserves, reducing air pollution, and the greenhouse effect which has been associated with global warming. These and other environmentally responsible attributes of PolySteel will provide you with substantial certification points under the Leadership in Energy and Environmental Design (LEED) program, the emerging standard for sustainable building design.

A.5 POLYSTEEL AND THE ENVIRONMENT (continued)

A.5.1 POLYSTEEL AND ENERGY STAR®

In 1992 the Federal Environmental Protection Agency (EPA) and the Department of Energy (DOE) began forging partnerships with manufacturers, retailers, utilities, businesses, and institutions to promote the labeling of energy-efficient technologies. American PolySteel was proud to be the first ICF Insulation Partner in the program as the manufacturer of a super energy-efficient insulation product. Our PolySteel Forms are labeled with the ENERGY STAR logo, along with our own. We have long recognized the environmental benefits of building energy-efficient homes and are proud to label our forms with this federal recognition.



American PolySteel has also joined the ENERGY STAR Home Program as an Ally, promoting the building of homes that meet the requirements of the program. These homes qualify for energy-efficient mortgages, including the PolySteel Energy Efficient Mortgage, which can qualify a homeowner for a larger loan, lower interest rate, reduced closing costs, and increase the appraised value of their home. Building with PolySteel virtually assures you that your home will qualify as an ENERGY STAR home. For more information on this program, contact your local PolySteel Distributor.

A.5.2 INDOOR POLLUTION

Buildings constructed with PolySteel Forms are as friendly to the interior environment as they are to our global well being. Because the air infiltration into a PolySteel house is 75% less than the infiltration that occurs in a conventional wood-frame house, the leakage of outside air pollutants, pollen and dust into a PolySteel home will also be 75% less by comparison. Consequently, the adverse affects of both noise and air pollution are significantly minimized, or eliminated, for the inhabitants and users of a PolySteel structure, creating a comfortable and secure atmosphere for those who may be sensitive to chemicals and allergies.

- ✓ PolySteel Forms do not contain CFC's, HCFC's, formaldehyde, asbestos, or fiberglass.
- ✓ PolySteel Forms do not produce any odor or fumes after four to six weeks from the date of manufacture. The pentane gas imbedded in the EPS to help expand and mold our product is driven off during the manufacturing process. The residual off-gassing of any remaining pentane in our finished PolySteel Form products does not occur, except at insignificant levels for a short period of time.

A.5 POLYSTEEL AND THE ENVIRONMENT (continued)

A.5.2 INDOOR POLLUTION (continued)

- ✓ Laboratory analysis of the expanded polystyrene foam (EPS) used in our Form has demonstrated that no breakdown of any of the EPS components occurs at temperatures below 170 degrees Fahrenheit.
- ✓ The structural strength and stability of PolySteel reduces cracking in foundation walls and basements, minimizing the leakage of radon gas into homes and other buildings.
- ✓ PolySteel Forms meet or exceed all national building fire code requirements with a flame spread of 0 to 10 feet and a smoke development index of much less than 450. In a fire, PolySteel Forms are less toxic than most common building and insulation materials, including wood. In an interior fire, the interior EPS in our PolySteel wall can produce 5,420 Btu's per square foot of heat, which is much less than the 10,000 Btu's per square foot produced by the wood in a 2x4 frame house. When burned completely, expanded polystyrene gives off water vapor, carbon dioxide, and some soot or ash, the same as paper. The fire retardant contained in our expanded polystyrene is brominated aliphatic hydrocarbon, which is stable below 392 degrees Fahrenheit.
- ✓ As for noise pollution, a PolySteel PS•4000 wall, with a 1/2" drywall interior veneer and an equivalent exterior attached, creates a barrier with a minimum sound class rating (STC) of 52, which is 8 to 10 times quieter than a typical framed wall and virtually eliminates outside noise.
- ✓ A fresh air exchange system should be considered for all tightly-built structures, which includes PolySteel construction (See Section D.15). The addition of an electronic air filter to remove the remaining airborne pollen and other pollutants will result in an indoor environment that is second to none.