Integrated energy design

Six steps to closing sales with energy efficiency

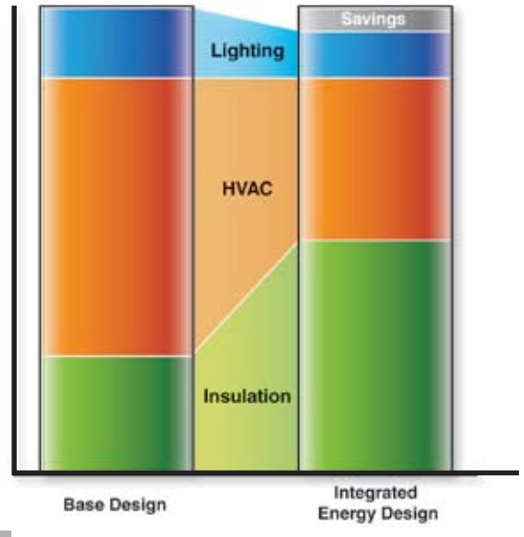
By Justin Harkins

It's no secret prospective building owners are asking more questions about energy. But when asked about energy efficiency, the majority of metal building contractors miss the opportunity to close the sale. Most will simply offer to upgrade insulation R-values or upgrade to higher efficiency HVAC equipment for a fee. These upgrades can certainly improve energy efficiency, but they will also be the same options offered by their competitor and therefore do not help them sell the building.

Close the Sale

When asked about energy efficiency, most contractors miss the opportunity to close the sale.

Energy consuming and conserving parts of a building are often considered separately in design. Responsibilities for calculating heating and cooling loads are often given to the HVAC contractor who has the equipment manufacturer design the HVAC system. The job of determining the proper amount of lighting is commonly outsourced to the electrician. Insulation R-values are generally determined by the contractor, and very often the choice is the minimum amount allowable by law. With this design approach, we end up with our current energy hog metal buildings that lose a lot of heat through the envelope and require excessive amounts of HVAC equipment to heat and cool them.



To use energy to close the sale, consider an integrated energy design of the building as a whole. Rather than starting with a base design and then upgrading parts on request, follow these steps to rebalance the design to make an energy-efficient building with little or no additional cost to build:

1 Increase the thermal performance of the building envelope. Reduce unwanted heat loss and heat gain by using insulation that has a higher installed performance and reduces infiltration. Conventional methods of insulating metal buildings compress laminated insulation over purlins and behind girts. This commonly reduces the thermal performance of the insulation by 30 percent or more and leaves seams every few feet through which infiltration air often finds its way. Use a liner system, such as Madison, Neb.-based Thermal Design's Simple Saver System, to allow for installation of uncompressed insulation and to provide a custom-made internal air barrier to fit each bay of the building to reduce infiltration.

2 Design your HVAC system to meet the much-reduced needs of the building. By insulating to sufficiently reduce the amount of heat and humidity to replace or remove at design conditions, the number of HVAC units required to maintain temperature and humidity levels can be reduced in most cases using standard load calculation and system sizing methods. The savings in HVAC equipment alone are often enough to pay for the upgrade in insulation.

3 Reduce lighting equipment and energy needs. Many metal buildings have open areas where the interior structure of the building is left exposed. With compressed insulation over the purlins and behind girts, the reflectivity of the interior surface is affected by having these often dark structural members exposed. This means that it will take more lighting equipment to achieve the same light level when compared to a building with a higher light reflectivity on the interior ceilings and walls. Increasing the reflectivity of the interior can commonly reduce lighting equipment costs by 30 percent or more. There are many ways to accomplish this, such as finishing the interior or painting purlins. Liner systems, like the Simple Saver System, already cover purlins and girts with a highly reflective liner fabric as an added benefit to the thermal performance. The savings for light fixtures will probably not make or break the project cost, but the energy savings for the owner can be significant and are easily calculated to assist you in selling the building.

4 Take advantage of other related design trade-offs. With less HVAC and lighting equipment, there are less units to wire, electrical service upgrades can sometimes be avoided and heat pumps can be used to eliminate natural gas service costs.

5 Design for available incentives. With the passing of the recent stimulus bill and the nationwide focus on energy independence, federal and local governments are offering significant incentives to reduce the cost of constructing energy-efficient buildings. Know what incentives are available and design to be eligible for them. If your competitor is trying to sell an energy hog, this can be a great competitive advantage.

6 Make the sale. Assume you've gotten this far in the design of a building and the cost for a significant upgrade to the thermal performance of the envelope has been exactly offset by cost reductions in HVAC and lighting equipment (compared to a base building with the minimum required insulation in the envelope). Further, let's assume you have successfully designed such that the owner will receive thousands of dollars in available incentives within the first year. If you sell for the same price as conventional construction, you have a building for which the cost to the customer in the first year is less than conventional construction and will save thousands on energy yearly thereafter. How much more is that building worth to the owner? You can use that to close the sale for the same price as conventional construction, or you can charge more for a building that will save the owner thousands of dollars.

Following this approach, metal building contractors can construct energy-efficient buildings that often cost no more to build than conventional designs, help owners obtain thousands of dollars in energy efficiency incentives and stimulus money, and reduce energy costs year after year thereafter. Any contractor can employ this design method. Some successful ones already do. For those who would like help, Thermal Design offers a Simple Saver Synergy Design service to assist contractors in the process.

Do not miss the opportunity to close the sale when asked about energy efficiency! Be ready with something your competitor may not have. MCN

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