

## **Buildings & Construction**

If we really want to get serious about massive reductions in carbon emissions and energy consumption we're going to do that through ultra high performance buildings, because 50% of this problem is buildings.

The challenge of the next generation is really to retrofit environments so that they're more environmentally sustainable and more livable.

*NARRATOR: Americans consume more energy than any other nation. If we can design and operate more efficient buildings, we will reduce our energy consumption and in the process, create jobs.*

### ***Building Performance Analysis***

My job is to go to people's homes and diagnose the energy efficiency and make sure that all the systems within the home are functioning at maximum efficiency.

We use diagnostic testing tools to find how tight the building shell is, how tight the duct system is, and other aspects of the home. We do the sealing work to the home and to the duct system and then we work with other contractors to get the other aspects of the home brought up to speed.

Retrofitting existing buildings to make them more efficient beats transportation, electric cars – all of that. If we just insulate homes and close holes in homes that are just leaking energy we can make a major impact.

If you're more hands-on, learn by experience, then this is a really good field. That's how we learn every day is actually getting out and doing the work, conducting the testing to find out if the work that we did actually made a difference.

*NARRATOR: Retrofitting the millions of existing homes and businesses in the US has to be done locally, and creates thousands of jobs for Americans. But how many of our cities and towns, highways, streets, airports, and other infrastructure? How many are using outdated, energy wasting technology?*

### ***Lighting Retrofit***

There's a lot of talk about green and what exactly green is. We're not only talking about it, but we're going into cities and we change 400-watt metal halide lamps to LED sustainable lighting and save energy, making a difference in implementing our lights.

You've got everything from entry-level administrative positions to assembly positions, all the way up to sales. We've got people that work in drafting, people in chemistry

that are dealing with different types of phosphor coatings for LEDs. I think that the sky's the limit with where jobs are in the industry.

### ***Green Construction***

Construction contributes 70% of all the waste going to the landfill. So changing the way we do things is critical. From the nails you use to the doors you use to the roof types you use you say: How does it affect the environment? How do we extract those materials from the earth to create it? What was the process in building say a window or a door, what are the conditions in the factory for the workers there? How much carbon are we throwing out?

This phase, somebody might drive by and just think it's any other project, but all the backfill that eventually will fill up to this slab height will be crushed concrete, not rock mined from the earth. All the rebar, that's all 90-plus percent recycled content. All this wood is FSC certified, which means it's sustainability harvested. It's not clear-cut.

It takes a lot of education, a lot of training in it. So there's-there's a lot of brain power out there, as far as, you know, being able to work with your hands. A lot of these trades there's a great living and there's good money in it.

*NARRATOR: More and more builders are adopting new green materials and sustainable construction practices. How far can cutting edge builders take energy efficiency?*

### ***Passive House***

The way that we define ultra high performance is called "passive house," and that's where we're actually building ultra tight, airtight buildings where we're getting a factor of 10 savings in energy performance.

And the results are pretty incredible. A house essentially that has a \$400 heating bill, would have a zero heating bill. The ones in Florida are more about eliminating your cooling loads. There're 25,000 buildings right now that have met the passive house standards. So it's absolutely something that's attainable here in the United States right now.

So in the jobs' world there's going to be enormous opportunities for builders who understand how leaky a building is or how tight ideally a building is. So if people are passionate about the environment, passionate about how we get there, I think there's incredible opportunity, and really it's almost endless.