



The 2030 Challenge: An Opportunity for Impact

It's About Energy

As a species, the exploration for, and generation and transmission of energy is by far the most environmentally destructive thing that humans do. Yet the reason we perform this operation with such zeal lies in the fact that we are an energy-hungry species. Energy demand is not only at all-time highs, but will continue to grow. Even though we mentally outsource energy or may be focused on living wirelessly, we are all a part of this system. We are an integral part of our nation's, and indeed our planet's, voracious appetite for energy.

It's Good to Save

While ecological change, especially unpredictable change, can severely disrupt global markets, the economic imperative for energy efficiency is more straightforward. The more energy a building, a company, a household, or a vehicle can save, the more money can be saved. This is almost a linear comparison, meaning that saving 20% of your energy over past years implies a financial savings of 20% as well. If energy can be saved without compromising human comfort and machine function, then one would consider this a "win-win situation."

What Does This Have to do with Buildings?

In the face of this deep-seated global issue, is there anything that can be done? And what does the built environment have to do with it? Simple answer: Plenty.

Buildings are the largest contributors to climate change. Buildings use 49% of our nation's energy, almost as much as transportation and industry combined, also contributing nearly half of our country's emissions [EIA]. Of the 47.8 quadrillion BTUs used by buildings in the US yearly, only 12% addresses the building materials and the actual construction of the building. The operations of buildings, however, comprise roughly 88% of this amount.

What Can We Do?

As we are a species growing in population and enlarging our collective carbon footprint, so too we are growing in our abilities to address complex problems like these. The awareness of this issue, the availability of information, innovations to deliver more efficient buildings and the desire by clients to achieve energy efficiency are all evolving.

Architects, working together with engineers, design and sustainability teams are in a unique position to lead us towards carbon neutrality. By setting realistic, ambitious goals and then following them, architects have a unique skill set and position within projects to exert their influence in order to create meaningful results.

The 2030 Challenge and AIA 2030 Commitment

In 2006, Architecture 2030, an independent non-profit research organization, issued the 2030 Challenge for industry entities. Fittingly, the 2030 Challenge was first adopted by the American Institute of Architects, which has been a resource ever since. The two groups created the larger AIA 2030 Commitment, which looks not only at the energy efficiency concerns of the 2030 Challenge, but also at indoor air quality, recycling and purchasing issues.

The 2030 Challenge and the AIA 2030 Commitment are both stand-alone commitments, but the 2030 Challenge is deemed essential. The goals of the 2030 Challenge are aspirational and center around the fossil fuel use and the corresponding emissions of buildings. The challenge is to gradually increase fossil fuel reduction standards for all new buildings and major renovations. By taking as baseline the average amount of energy that buildings use per square foot, the 50th percentile, adopters of the Challenge must today design buildings to consume 70% less energy than an average building. By 2020 buildings must be designed to be 80% more efficient, by 2025 buildings must be designed to be 90% more efficient, and by 2030 the ultimate goal is design to be carbon neutral, emitting no greenhouse gases. Meanwhile, existing building renovations are to be designed to perform 50% better than average performance for their building types. But this per-square-foot average will be a moving target, as the performance of all buildings steadily improves.

Bolstering these goals is the fact that, according to architecture2030.org, we in the US build and renovate approximately 10 billion square feet of space each year. Over the next 30 years, nearly 75% of the built environment will be new or renovated. This is where the opportunity lies. Taking into account that the vast majority of our building stock will be built or rehabilitated in the next 30 years, the ability for us to impact this construction is what makes carbon neutrality in the built environment something for which to strive.

Aspirational Goals as Tools

Over fifteen years ago, the advent of the US Green Building Council's LEED rating system ushered in a structure by which the setting and reaching of goals has created building projects with less environmental impact. The striving for aspirational goals unified project teams and created measurably better projects than would have been conventionally delivered.

As a rule of thumb, the sooner in a project that sustainability goals are established, the better success the project will have in incorporating them in an integrated and cost-effective manner. At my design and consulting firm we have seen this repeatedly in our own work. Goal setting is critical.

What You Can Do

Locally, AIA Pittsburgh's Committee On The Environment has been programming courses aimed at educating architects, engineers, contractors, building owners and facilities managers about *how* to deliver buildings that are highly efficient. These courses are part of a national curriculum called AIA+2030, and are designed as a 10-part program aimed at understanding how to design, build and operate more efficient buildings.

The large energy uses of a building are roughly divided into heating and cooling; lighting; electrical plug loads and the building envelope. The AIA+2030 curriculum breaks the energy generation and usage of buildings into a series of seminars that build upon each other. While interest is being developed in the desire to build and renovate in a low-carbon manner, these courses offer a comprehensive way to learn to design and deliver these buildings. See the other side of this sheet for more information about the courses.

This is a good counterpart to the Green Building Alliance's **Pittsburgh 2030 District**, which seeks to have the buildings in the Downtown and Oakland districts of Pittsburgh adopt the 2030 Challenge and target similar incremental goals for water efficiency, indoor air quality, and transportation emissions. Currently, building owners controlling over 50% of the square footage within these districts have signed on.

Whether you feel that the planet exists in order to serve our needs, or that we must work to improve it, there is something about the Challenge, Commitment and the AIA+2030 program for everyone to embrace. This is a momentous opportunity for the architecture and building community to dramatically reduce fossil fuel consumption and greenhouse gas emissions and for project team leaders to demonstrate leadership at a time when it is truly needed.

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