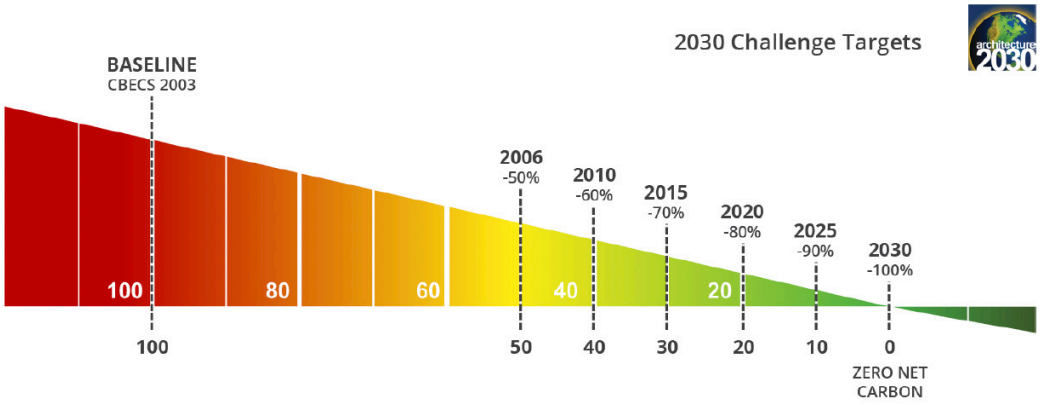
IN THE KNOW

01.23

THE KNOWLEDGE YOU NEED DIRECT FROM THE MINDS OF MEP ENGINEERS

Architecture 2030: Tick, tick, tick...

Hear that? That's the ticking of the clock as 2030 – and the AIA 2030 Commitment – draw nearer and nearer. Most of you are familiar with the 2030 Commitment (which is built on the Architecture 2030 Challenge but also encompasses items like water usage and indoor air quality), and many of you have been involved in a Minnesota B3 project (which sets the energy and carbon use targets for all state-funded Minnesota buildings). But are we in the AEC industry truly preparing to design fully net zero, carbon-neutral buildings by 2030?



Why are we worrying about this now? Because there doesn't appear to be any "silver bullets" out there that will somehow magically help us reduce EUI and carbon to zero. Technology is improving, and new options like groundwater-enabled geo and low-temp heat pumps are coming online, but equipment alone won't get us where we need to be.

Our advice? Start tracking energy and carbon use in your buildings now through energy modeling and utility metering. Why? Doing so will give you a good baseline of what design strategies are working (or not) in different building types. Also, fully embrace an integrated design process, getting all the disciplines to the table early. Lastly, get to know and understand how energy modeling and building commissioning (Cx) fit into the equation and can help you achieve your energy and carbon goals.

on the mind of
Scott Vander Heiden, PE
Mechanical Engineer & Partner

Equipment Lead Times: It'll be Fine... Right?

You've heard it before: hope is not a strategy... especially when it comes to obtaining HVAC and electrical distribution equipment.

As of this moment, lead times for both are still both long and uncertain. Manufacturers indicate that a lack of skilled labor and materials are the cause of supply shortages, a problem that has been exacerbated by the lingering effects of the pandemic. What does that mean for us today? Lead times for electrical equipment range from **6-12 months** for transformers and **12-16 months** for switchboards. Projects requiring generators may be facing **16-22 month** lead times.

How can we help reduce the strain these lead times are placing on our projects? Engage us early in the design process to help zero in on potential equipment, and then leverage partnerships with contractors and vendors to procure equipment as soon as possible. Making early, informed equipment decisions – regardless of whether it's a design-build-bid process or a design-build one – will minimize heartburn down the road.

on the mind of
Shawn Stockwell, PE
Electrical Engineer

Chasing Net Zero: Goundwater-Enabled Geo

We can all agree that the less energy a building consumes, the less energy it needs to generate. One technology that is helping us do just that is groundwater-enabled geothermal. The department of energy is recommending that geothermal displace 50% of conventional HVAC, as it's the most energy efficient and environmentally friendly heating and cooling technology. Groundwater-enabled geothermal has changed the game in many locales (especially here in Minnesota where we sit atop numerous aquifers), making geo a viable option for a large segment of the market for the first time.

Groundwater-enabled geo essentially makes use of a heat exchanger in a well. It's a closed loop system – groundwater remains in the ground; it consumes zero water – that uses a pump to draw water across the heat exchanger, providing energy to the building it serves. Because groundwater runs between 50-55 degrees (F), groundwater-enabled geo can generate **60+ tons of capacity per well** (versus 1-1.25 tons per well in traditional geo), reducing both the footprint and upfront installation and equipment costs.

The applications for this technology are expansive, but all require an experienced MEP engineer to design the system that works best for the building and its occupants. **Our advice?** Talk to us early so we can help you determine if groundwater-enabled geo is an option and begin discussing design strategies to meet your project goals.

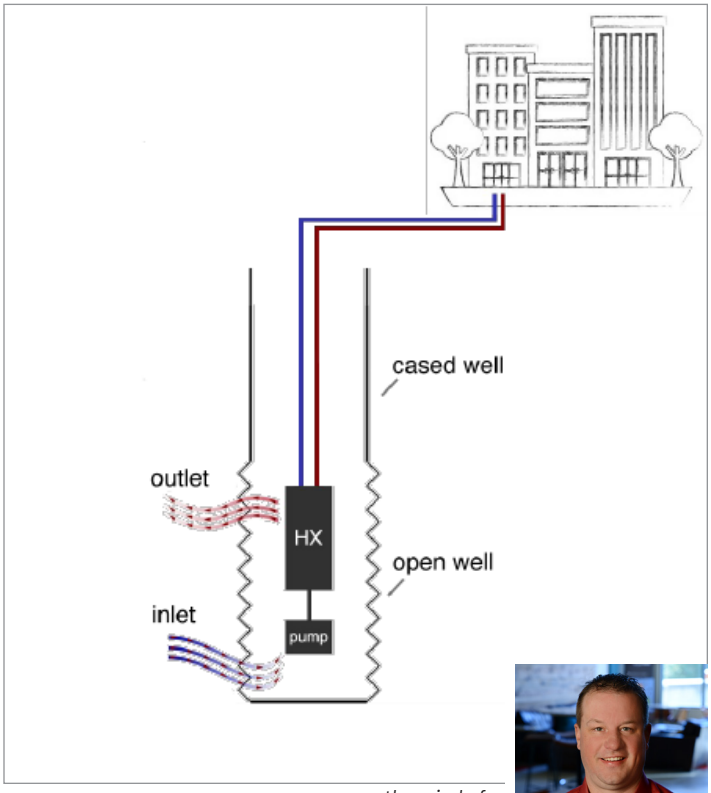


Image Courtesy of Darcy Solutions

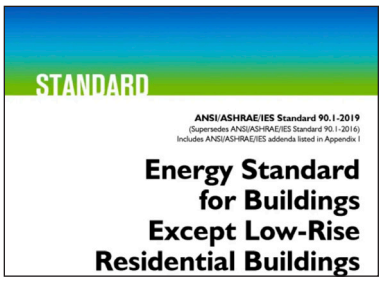
on the mind of
Adam Bruns, PE
Mechanical Engineer

New Minnesota Energy Code

Earlier this month the Minnesota Department of Labor and Industry approved the new Minnesota Energy Code which is based on ASHRAE 90.1 – 2019 (the previous version is 90.1 – 2016) in large part to help close the gap between the energy code and the state's goals for building sustainability.

While the new code has been approved, it has not yet been adopted; that'll likely happen later this year. And while there's typically a six-month grace period for projects that are started during the transition, there are things that architects and engineers need to be thinking about now.

Probably the biggest change in the new energy code is that the new version will only allow design teams to **follow ASHRAE rather than having the option to use IECC**. The requirement to use ASHRAE will have implications in the corporate and education sectors, because of the controlled receptacle and energy metering requirements of ASHRAE. The multifamily housing sector will also feel the change as units over 750 square feet will now require an energy recovery unit, an addition that could mean $3,000-$5,000 more per unit. And – with a few exceptions – any project over 10,000 square feet will require building commissioning (Cx).



Got a project that will get started in the next six to nine months? **Be smart and start talking about the new energy code now.**

on the mind of
Ben Bahr, PE
Energy Modeler & Mechanical Engineer