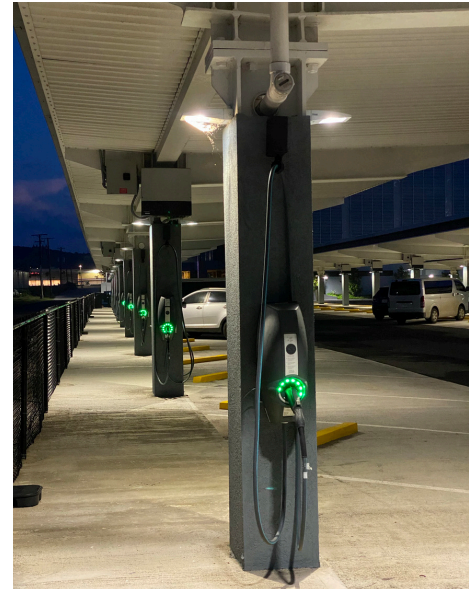


EV Charging Stations: Powering Up

The current *we-need-to-understand-this-NOW* push across most industries centers on how to manage the demand for EV charging stations. Whether dealing with large-scale fleets of vehicles or simply trying to understand how to upgrade your facility or business site, there are a few factors to keep in mind:

- **First:** Don't go it alone. Get your electrical engineering team together.
- **Goals:** Consider both the short term and long term. You may have a semi-urgent need that you need to tackle asap. But it needs to be scalable and fit with your plans for the future.
- **Site(s):** Have your team do a site assessment to make sure there's alignment with your goals. Not all sites are created equal, and location matters more than you might think.
- **Vehicle Type(s) and Charging Schedule(s):** As more and more EVs come to market, understanding the needs of each vehicle type is increasingly important. Also, take the time to define and document your charging schedule(s), being sure to overlay your operational needs.
- **Equipment:** Identifying what equipment you'll need early will help things progress smoothly. It's no secret that some equipment (switchgear, etc.) has a long lead time.
- **Utilities:** Have your team get in touch with local utilities early to discuss capacity and timing issues. If necessary, plan a ramp-up schedule to align with your timeline and goals.



As with any project of this type, the devil is inevitably in the details. There **WILL** be tensions between the above considerations; **some additional planning time up front will save you headaches later.**



on the mind of **Tom Roberts**
Electrical Designer

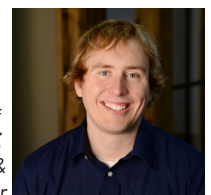
IRA 101: The Basics

It's been just shy of a year since President Biden signed the Inflation Reduction Act (IRA) into law, a pen stroke that released half a trillion dollars in new spending and tax breaks **aimed at fostering clean energy** and addressing climate change.

But what exactly does this mean for those of us in the AEC industry? In short, a lot. While many of the rebates and tax credit programs in the IRA are geared toward the residential sector, there are a few important commercial programs you should know about:

- **Energy Efficient Commercial Buildings Deduction (179D):** This revises the existing energy efficient commercial buildings deduction, making available significant tax deductions as reductions in the project's EUI are realized. This can be applied to virtually all projects when the owner is a taxed entity.
- **Business Energy Investment Tax Credit (ITC):** This modifies and extends the current credit, providing considerable tax credit incentives toward the use of eligible renewable and clean energy technology. **(This is no joke: the credit can be worth up to 30%-50% of the technology investment.)** Solar, geothermal, groundwater-enabled geothermal, and other technologies are included.
- **The 45L Credit:** This is an updated tax-credit included in the IRA that incentivizes homebuilders (including those building multi-family projects) to comply with programs like ENERGY STAR and Zero Energy Ready Homes (ZER).

You'll want to involve a tax professional early to maximize the impact of IRA. And of course **work closely with your engineering consultant** to identify the right tools for the project.



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

NEC 2023 Adoption: It's Here

Wondering why there were lines around the block to pull an electrical permit in late June? That's because **Minnesota adopted the new National Electric Code (NEC) on July 1**, meaning that any permits pulled going forward need to comply with the new requirements.

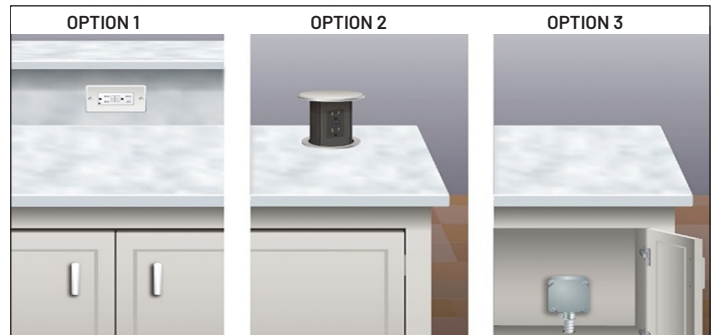
What the heck are we talking about? Well, late in 2022 the National Fire Protection Association (NFPA) released the latest edition of NFPA 70, also known as the National Electric Code (NEC). This update happens every three years and is typically adopted at the state level a handful of months after the national release. In Minnesota, that usually (but not always) happens on July 1.

The release of any new code has design implications, and NEC 2023 is no exception. Some industries are impacted more than others, but across the board changes are in play. A few highlights:

- **For most projects** there are new requirements for working space (including grade and obstruction specifications) around electrical equipment. Also included are new requirements for GFCI protection in areas such as bathrooms and kitchens (non-dwelling). This will impact office kitchens, break rooms, amenity spaces, etc.
- **Assisted living facilities** with permanent provisions for cooking were added to the list of guest rooms and guest suites that must now have branch circuits installed to meet the dwelling unit requirements.

- **This is a big one for those in the multifamily housing sector:** you are no longer allowed to install any receptacle below the countertop or work surface. See the image below for options.
- **Also broadly impacted are** energy management systems, emergency disconnects, tamper-resistant receptacles, storage garages and much, much more.

Our job as electrical engineers is to make sure you're aware of the changes that affect your project, and to do so early enough in the process to eliminate (or minimize) snags. **Let's talk soon about how NEC 2023 will impact your work.**



Above: Three possible options for countertops: 1) above the work surface; 2) housed within the work surface; or 3) a junction box to serve an outlet at a later date (future provision).



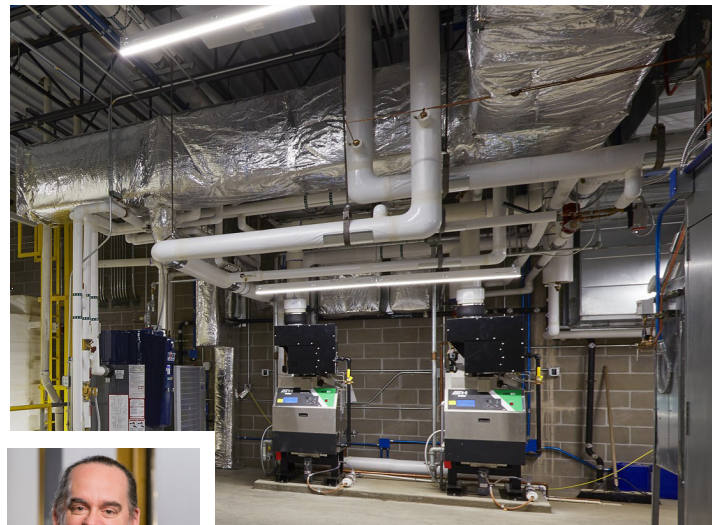
on the mind of
Kelly Artz, PE, RCDD, LEED AP, WELL AP
Electrical Engineer and Partner

Um, Your Project? That's Gonna Need Cx...

As was mentioned in our Q1 issue of "In the Know," Minnesota and other states are beginning to adopt the ASHRAE 90.1-2019 standard as part of their building codes. (Minnesota has currently approved but not yet adopted the new code; that'll happen in early 2024.)

One of the major drivers for the updated code is a desire for reduced energy consumption; the latest code update requires a 5% reduction in energy consumption over the baseline. To reach this threshold, the standard includes updates that impact equipment efficiency standards, sequence of operations, and construction processes.

Perhaps the biggest change: ASHRAE is now requiring commissioning on essentially all projects (except for those under 10,000 square feet). Applying commissioning to these projects is seen as a way to ensure that the building systems work and achieve the additional 5% energy savings and other performance goals.



on the mind of
Mat Lindquist, PE
Director of Commissioning

