Tower Electric, Inc.

MorningStar at RidgeGate

Best Building Project — Specialty Contractor

$6-$10 Million

The famous American engineer and industrialist Henry Ford wrote: "If everyone is moving forward together, then success takes care of itself."

At Tower Electric Inc. that quote resonates with us as we endeavor to provide excellent electrical construction services in the thriving Denver-area built environment. Since our founding in 2006, each successful, completed project has been a foundational stone of Tower Electric's success, reputation and stature in the community. In this, our Tenth Anniversary Year, we are confident that our achievements are based on our commitment to highest quality work and committed personnel and support staff. Each new construction challenge is an integral part of our success, and of our commitment to excellence.

In March 2015, we began work on the MorningStar Assisted Living Facility at RidgeGate, in Lone Tree, Colorado. At 297,934 S.F., this new facility is our young company's largest contracted project to date, with over $6 million in electrical costs. This project is located on 4.8 acres of the Northeastern corridor of the widely recognized, RidgeGate Development. Working in tandem with Haselden Construction, we were determined to seamlessly collaborate on this important and challenging project. The elaborate multi-building retirement village tested our capacity and resources, stimulating us by its industry changing innovation.

Pre-construction planning began in Summer, 2014. At that time, we were introduced to Prescient®: a fully unified design, engineering and construction solution generated through its manufactured, panelized metal-stud framing system. This advanced structural system/new construction method became the most essential component of our pre-planning ventures. During initial stages of our electrical design, our strategy was shaped by the accuracy of our 3D modeling. Through Revit® BIM (Building Information Modeling) software and technology, the

integrated design and construction workflow enabled us to align the details of our electrical system to the panelized structure model.

We developed our installation strategy by responding to the innovative changes in the construction and modeling methodologies, and by adhering to a compressed construction schedule. The building structure is assembled in only four steps: (1) Hollow Structural Section (HSS) posts set the foundation (*attached from floor to floor*); (2) wall panels are bolted between the posts; (3) open web trusses are installed (*centered 2ft. apart*); and (4) a 1' thick subfloor is installed (*lightweight concrete or dry cement board*). The expedited installation of MorningStar's five adjoining buildings required that we accurately project our personnel requirements to ensure the most effective and cost-efficient use of Tower Electric's labor resources.

In the several months preceding the start of the project, we took every measure to familiarize ourselves with the building technique and formulate an aggressive, informed project approach. In January we toured the Prescient factory based in Arvada, CO. For the first time, the modular system we had studied in 3D came to life in the form of precisely manufactured components. Analyzing the parts on display, we made the translation between the virtual design models and the eventual metal-stud framework — soon to become the backbone for the MorningStar at RidgeGate facility. By fully understanding the specifications of each component in this grid-based system, Tower's role in the project would be as steadfast and concise as the perfectly formed, welded and drilled parts that would comprise the building's structure. Due to the unique nature of this project, we modified our installation strategy in order to accommodate the unique cross-bracing of the modular structured wall system – a system that did not allow for traditional electrical installation techniques. Each Tower electrician and supervisor on the project had a complete understanding of the technology and the advantage of informed decision-making prior to the start of the project.

> *"As a peer subcontractor of theirs, the highlights of our relationship with Tower are simple but important — they have been a good team player in the pre-construction and construction phases of the project. The field management team has been very good to*

work with — a very positive working situation, very little stress, proactive problem-solvers."

— Dennis Robinson, Owner, ProCraft Mechanical, Inc.

During the first weeks of construction on the MorningStar Facility, the building began to take form around and above the Tower team, like a life-sized Erector Set. Beyond the platform's digital characteristics and accredited material traits, we knew very little about the physical expectations of the installation and the tapered working environment. We worked tenaciously, adhering to our installation plan. The engineered structure system was highly technical, and our electricians had very little margin for error. Our team's daily "morning huddles" and team task-planning ensured that we tied loose ends in advance; and solved construction issues before they could arise. Regular safety meetings were thorough and conducted regularly – by both Tower Electric and the entire construction team. We utilized independent safety inspections throughout the month as ordered, and self-performed inspections daily to ensure our personal safety on the job. During our daily huddles and group discussions, our team identified and addressed topics, in an itemized manner, that were specific to the continually changing construction environment.

Tower Project Manager, Mike Barron, explained: "The job site was immaculate. Electrical cords were hung and draped, and aisles and walkways were kept clear. Situational awareness was very important on the job, as there were many of us working in a relatively small space. We kept our internal communication lines open and efficient and adapted to the many challenges that were products of this rigid construction method."

During Spring/Summer 2015, the Tower team had accomplished an efficient and confident rhythm. New challenges arose with the arrival of colder weather conditions. As MorningStar's framework grew to its varied three and five-story heights, the raw exposure of the panelized metal-stud structure created an interior building temperature far colder than predicted. By mid-January 2015, our role was at its peak, with the greatest number of electricians to date on the job. With highs in the 40s, a possible decline in productivity was a major concern – wind, snow and sub-zero temperatures are all leading factors in lost opportunity. As a result of these conditions, Tower outfitted crewmembers with thermal hardhat inserts to protect their ears, neck and face

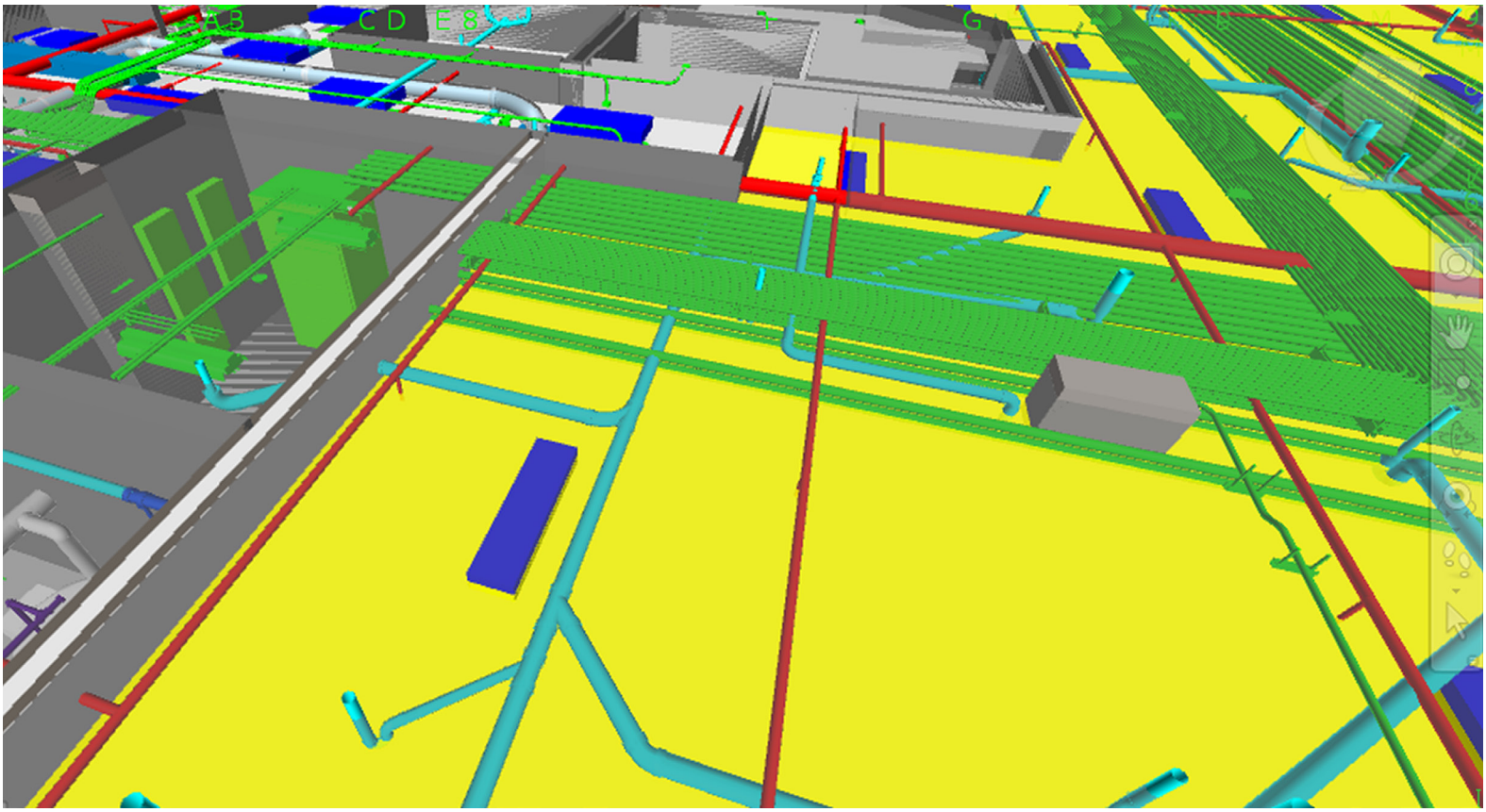
without obstructing an individual's sensory abilities, supplied glove and boot warmers to help maintain warmth in their vital extremities, and installed temporary heating modules in working areas. The efficient work of the Tower team was uninterrupted, due to this provision of resources and creative management of personnel. The cultural significance of this cannot be underestimated: the resulting gratitude, satisfaction and worker morale kept the Tower team motivated and on schedule.

> *"Tower Electric performed better than any subcontractor on this project. Their quality of installation and meeting the schedules was better than most. They communicated well, understood each person's responsibilities and met all deadlines."*
> *— Andy Murray, Superintendent, Haselden Construction*

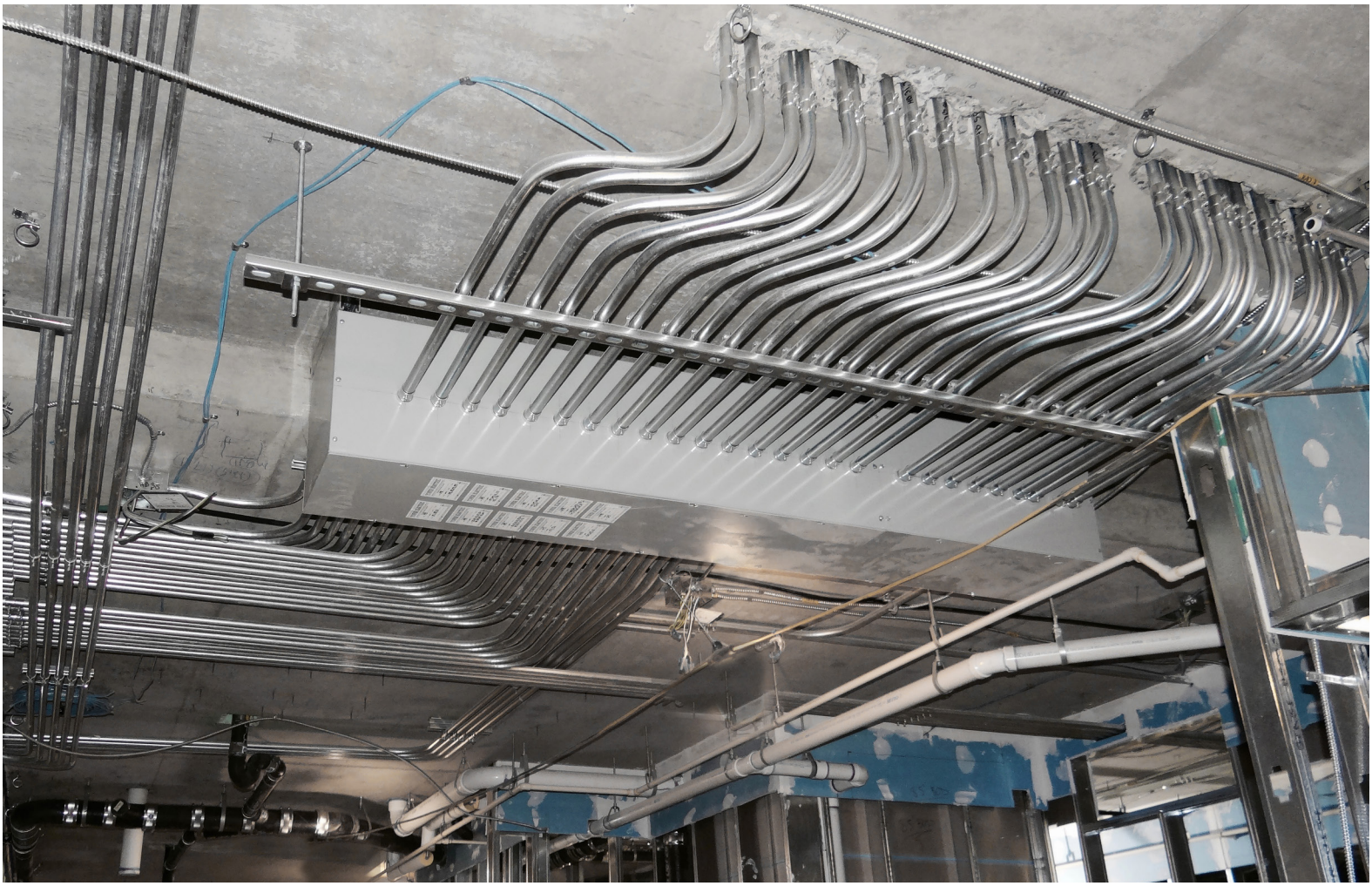
By the end of February 2016, we had conquered the trials of an extraordinarily cold winter, and Spring was on the horizon. We had executed our strategy as planned: our labor pool peaked over 50 electricians in January (with no reported accidents on the job) and our program was completely on schedule. Installments and inspections were ahead of schedule, allowing for fine-tuning of every electrical operation. Throughout Spring 2016, Tower Electric sustained a seamless project implementation. The final ten weeks of the project would require a modest labor force, with less than 10 installers on the job at any time. As a team, we began to see and feel the impact of our Herculean efforts over the 1.5-year duration of the project.

> *"As Owner and President of Tower Electric, I am extremely pleased with our entire performance on this exciting project — from our pre-construction staff, to our project management and field staff. Having managed over $300 million in electrical installations, this is the single largest project completed. Adding the complexity of the new modular design, our risk was great as a growing electrical company. However, we managed it flawlessly from start to finish, and the entire team is proud of their accomplishments. "*
> *— Rick Ellis, President, Tower Electric*

We are now one month away from completion of the MorningStar at RidgeGate Facility, and it will be completed ahead of schedule. With no interruptions in the electrical installation process and a seamless execution of our job, we at Tower entered into a new era of excellence in our business. We met the challenges of innovative and evolving technologies with a renewed professionalism and advancement to the pinnacle of our profession. We were instrumental in shattering negative cultural stigmas associated with construction trades by staying on-task and on-budget – and importantly, finishing early. Our breakthrough success in lean construction techniques, three-dimension modeling and the manufactured wall system resulted in a total of 75,000 project hours, and no time lost. The MorningStar at RidgeGate Assisted Living Facility has been one of Tower Electric's most quintessential journeys, and we value the experiences, challenges and partnerships that proudly led us to this accomplishment.




ONE WAY
HASELDEN
CONSTRUCTION
ProCraft
TOWER ELECTRIC
720-435-7002
MorningStar
SENIOR LIVING




BUS SPLIC