Riviera Gardens – Electrical Service Replacements
Comprehensive Report

October 12, 2023

RTM had begun work on the project in February of 2023, which started with multiple site visits and a meeting to review the existing electrical services, to discuss the HOA's needs, and to determine what the most economical direction would be to replace the existing electrical services. The outcome was to replace all of the existing electrical services with new for a 'like for like' replacement.

Southern California Edison (SCE) is the serving utility company of the development. The electrical system they used throughout the entire site is a 120/240 volt, single phase system, distributed through multiple utility transformers throughout the development that serve each of the building's electrical service. Each building in the development has two or four electrical services that are mounted in a dog shed style closet on the exterior of the building. These services feed the dwelling units electrical panels on that building and each service is rated for either 200 amps or 400 amps depending on the number of units that each one serves. There is a total of (56) electrical services.

The electrical services do contain the electrical meters and a 100 amp circuit breaker for each of the unit panels served. These electrical services and the breakers within it were manufactured by Federal Pacific Electric Company (FPE). FPE is a manufacturing company that is no longer in business and the replacement components are no longer readily available. Replacement circuit breakers or parts may be available, but would most likely be a refurbished item.

The circuit breakers in the electrical services serve two purposes. The first purpose is as a means of disconnecting the electrical power to the building, this is typically used in the event of a fire, in an emergency, or for maintenance or repairs within a unit. The second purpose is to protect the electrical feeder conductors (wires) that are connected to the meter at the service and at the dwelling units electrical panel. This is commonly referred to as over current protection. As most tenants are familiar with, a small branch circuit breaker in a dwelling units panel may trip when a tenant plugs in multiple appliances (i.e. iron and a hair dryer) and operate at the same time. This is due to the amount of current (amps) that is running through the circuit breaker and wire out to the outlet. What the circuit breaker is doing is protecting the wires from overheating and what would eventually start a fire if it did not trip, the main circuit breaker in the electrical service act in the same fashion for the feeder wires to the unit panel and would trip if the amperage exceeds the 100 amp rating of the feeder wires.

Based on our original conversations, there have been multiple instances where these feeder circuit breakers trip and are difficult in resetting or they cannot be reset at all. Not being able to reset a breaker is one of the signs that a breaker is failing, and if a breaker continually trips with out any signs of shorts, that is another indication of a failing breaker.

Not replacing faulty or failing breakers compromises the integrity of the electrical system. The feeder conductors (wires) that the breaker is to protect may now be unprotected, meaning if the amperage drawn by the unit panel exceeds the rating of the conductors, they will overheat to a point the insulation melts, an arc occurs, potentially starting a fire.

Although there were not any test performed on the electrical system and components, but just based on the age of the equipment, the repeated breakers tripping, and the reputation that FPE had in the past due to a special line of breakers they once manufactured, it would be our recommendation to replace the electrical services given the history of events with the tripping of breakers. That would provide a more stable and reliable electrical system.

RTM prepared the construction documents for the permitting process and construction. In addition, RTM met with the local Southern California Edison (SCE) planner and PIC member on site to discuss the project to get input and all requirements from SCE. At this meeting, it was request and required by SCE that the existing secondary ducts (the conduits from the transformer to the electrical service) for the 400 amp services would need to be field verified by the owner to ensure they meet the current SCE regulations of being a minimum of a 3" conduit in order for the secondary conductors can be reinstalled. The HOA did have an electrical contractor perform the site investigation to a few of the electrical services and confirmed that the existing conduits did not meet the current SCE regulations and therefore the (41) 400 amp electrical services will need to a have a new 3" conduit installed underground from the transformer to the electrical service.

Revised electrical construction documents/drawings were provided and used as part of the request for proposals to the participating electrical contractors.

Thank you,

Victor Leon, PE
Principal