



CONNECTED COMMUNITIES: WAS THERE WORTH IN SMART HOME TECHNOLOGY IN AN APARTMENT COMMUNITY?¹

Should Mosaic Development add smart home technology in their multi-family developments?

This was the question that Marc Mariano, development partner at Mosaic Development, pondered as he struggled to decide if he should install smart home technology in his latest multi-family project.

Mariano understood that connected communities had been increasing in popularity over the last couple of years. Some see smart home technology as a luxury for residents but feel that it will continue to become expected over the next couple of years. The primary goal of smart home technology was to empower the resident to use it to its fullest potential to customize their living experience.

Apartment communities had begun to include technology such as keyless entry systems that work off a smartphone, community-wide Wi-Fi, and package lockers with 24-hour access. In addition, the apartment featured smart devices (such as lighting, outlets, switches), smart thermostats, sensors that detect water or gas leaks, and a voice control platform, much like Alexa or Siri. This technology could help reduce a renter's cost of living, provide convenience, and even save a life in a gas leak or fire.

However, if Mariano invested in smart home technology and the renter did not see the premium rent value, the project would not be profitable. One nagging question was how much a renter would agree to pay us a premium given the organic increase in rent driven by the astounding growth in rent that was happening across all Florida markets in 2021.

Mariano, as a partner/owner at Mosaic Development, a St. Pete based company, was focused on developing the apartment communities desired by renters. Several issues influenced Mariano's decision of whether to proceed.

Mariano knew this was not going to be an easy decision to make.

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Industry Overview

The single-family housing market hit records across many indicators in 2020. The economic bifurcation of the economy bled into the apartment market as owners of smaller, older, and Class C properties saw delinquencies rise while institutional owners generally had better outcomes. Similarly, but with some exceptions, properties in large urban cores experienced decreased rents and occupancy levels while suburban properties and those in smaller, more affordable cities performed well.

On an annual basis, rent growth was positive, albeit muted while occupancy rates experienced slight declines before ticking up in 2022. New supply forecasts ranged from 300,000 – 400,000 units in 2021 as construction delays because of the pandemic and downturn caused timelines to get pushed into the following year (National Apartment Association, n.d.). Apartment owners and operators were prepared for a challenging 2022, and budgeted for declining revenues and increasing costs, both on the operating side and for capital expenditures (We are apartments, n.d.; National Apartment Association, n.d.).

The other key factor in renting an apartment was the amenities that the apartment community or, more importantly, the development group provided. Smart apartments went well beyond devices, and presented a novel approach to the entire multifamily experience. The future of living revolved around something invaluable – time. Enter Smart Apartments. As consumers traded in spacious suburban homes for city lofts and condos, priorities had shifted from material goods to experiences. Time was a new luxury. This was exemplified by the evolution of the on-demand service economy. Uber, Dollar Shave Club, and Amazon Prime saved time and hassle so we could focus on the things we cared about (Miller, n.d.).

This meant that future living spaces needed to evolve as well. They had to enable consumers to save time, not just store stuff. They had to connect us to the world, not keep us isolated. In living spaces of the future, internet connectivity had to be a utility for all – not an amenity for some – and intelligence was to be built into the walls, not just plugged into an outlet. While smart home devices captured much of the public attention, the true future of living began in the smart apartment. Apartments better served the need for flexibility and convenience. They also gave that sense of community everyone longed for. But convenience and time arbitrage were just the beginning for smart apartments. When buildings were hardwired for connectivity and community, they were capable of so much more.

Technologically-advanced, or “smart,” buildings not only provided residents and prospects with desired experiences but also offered profound financial and operational benefits for owners and operators. This played out massively during the COVID-19 pandemic, as apartment communities with tech features ranging from keyless access control and smart-home technology to lightning-fast connectivity, community-wide Wi-Fi, and self-guided touring options were able to adapt quickly to operational constraints related to stay-at-home orders and social distancing requirements. In the post-pandemic world, the multifamily embrace of intelligent building technology was the new normal, according to industry experts. However, getting to the new normal required more than just shifting our thinking around property operations and embracing new smart technology and enhanced digital connectivity. It required laying the groundwork in buildings and communities by creating the proper digital infrastructure (www.Naahq.org).

Although overall market fundamentals were expected to be weak in 2022, there were numerous tailwinds for multifamily demand on the other side of the pandemic. The single-family market was far more under-supplied than the multifamily market prior to the pandemic. Increasing costs of materials, particularly lumber, and the feverish pace of demand had put further downward pressures on single-family supply,

which were already at historic lows by some measures. The growing gap between home prices and rent growth meant renting would be a better option in many areas, although low mortgage rates continued to be a draw to homeownership. With some 26.6 million 18 to 29-year-olds living with their parents, according to the Pew Research Center, pent-up demand could be expected once this cohort entered the job market and/or attained a more solid financial footing (National Apartment Association, n.d.). These younger individuals were also looking for apartments to rent that had all the smart home technology that was available!

Real estate developers had multiple decisions to make regarding how much capital they should invest in smart technology. Developers had to choose to sell off the units as condominiums or retain the property for rental income streams. They could sell the development before or after the community was leased up. Many developers chose to build condos as it was often easier to obtain and repay construction financing on condominiums. Many lenders required a developer to pre-sell a certain percentage of units before construction began. The developer would get capital from deposits on units sold upfront and once the building was occupied, they would receive the remaining capital for the units sold and pay back the loans. It was a much quicker turnaround and developers would often balance how much smart technology they should invest in to maximize the return on their investment, especially since they didn't plan to hold onto the property. On the other hand, rental apartments had a much longer payback period which can span several years. The developers recouped their investment by collecting monthly rents which they used to repay investors.

Developers also analyzed properties' capitalization (cap) rates. The cap rate is a simple formula comparing a rental property's net operating income to its purchase price. It's best understood as a measure of risk. A lower cap rate meant the investment is safer and in contrast, a higher cap was riskier. The major factors that affected cap rates were macro-level economics and demographics, micro-level market influences, and the type of property. Combining these three factors gave each property and market a unique cap rate that investors could use to manage the risk. For example, a retail building had a higher cap rate than an apartment building in a market with a low supply of housing in a recession. Real estate values depended heavily on debt financing and national capital markets, but interest rates also played a large role. So, changes in interest rates increased or decreased cap rates even as property or market stayed the same. Expected occupancy and estimated rental income was factored into this cap rate as well. Developers had to analyze these factors to measure the risk regarding investment return.

Today's Renters

When most think of present-day renters, the profile was a twenty-something with no spouse or kids. This was the profile that most media and news coverage focus on in recent years. The rental market, especially in the multi-family sector, was a lot more diverse and could not be lumped into one large group. RealPage did an in-depth analysis of the apartment renter base, examining 5.7 million individual lease transactions to look at the statistics including income, age, number of adults in the household, marital status, and the existence of children and pets per unit. Based on this analysis, eight distinct types of U.S. renter households emerged, as discussed in the Oct. 2 RealPage Asset Optimization webcast. Further, some types of households were more prevalent in certain local markets and in certain product types than others. To identify these various local trends, 25 large metros and 25 smaller markets across the country were studied (O'Brien, n.d.).

Per Exhibit 3, the largest group of the renter profiles was the Starting-Out Singles. The next largest group was the young adult roommates. These two groups fit the profile of what most people thought of as the average renter. About 50% of the remaining groups comprised different profiles including Middle-Income

Boomers, Working Families, and Perma-renters. Perma-Renters, who were renters by choice not necessity, were often overlooked and were on average in their early 40s, single, and usually renewed their expiring leases.

Within this high-technology-driven Information Age, renter's behaviors had continued to evolve at a rapid pace. Multifamily communities had to adapt to technology and find more ways to attract perspective renters. In research curated by RentPath, apartment searchers often evaluated a community using multiple sources of information. About 84 percent of prospective renters started with a broad search on a search engine, 70 percent then landed on an Internet Listing Service (ILS), and average apartment searchers used four ILSs while searching for their next apartment home. Then, they would often go back through different channels even after the tour was scheduled, either to show their friends the community, do additional research or ask follow-up questions (Jakel, n.d.). The traditional single-source approach for leads was outdated as renters were researching numerous sources. Apartment communities had to make sure they had information available everywhere including social media sites, application review sites, company websites, ILS, etc. Renters were becoming savvier in the digital age and would double-check strong reviews on apartment listings on social media accounts. Communities able leverage this technology to reach renters could use this as a competitive advantage.

Today's renters were more sophisticated and more demanding than they had been in the past. A major misconception was that renters lived in apartment communities because they did not have the income to buy a house. The number of high-income renters was growing faster than any other income bracket level. Renters by choice and not by necessity, this new breed of resident, saw a whopping 175 percent increase during the previous 10 years, outpacing even high-income homeowners in terms of growth. According to Yardi's RENTCafé, the number of Americans who earned \$150,000 or more per year and opted for renting increased by 1.35 million between 2007 and 2017, challenging the idea that top earners in the U.S. preferred to buy instead of rent (Number of High-Income Renters Increases, n.d.). 2.1 million of the 43.3 million renters nationwide were top earners according to the US Census data. Comparing this to 2007, the number of top earners had tripled from when there were only 774,000 high-income earners. Today's astute renters valued a building's interior and exterior aesthetics including the paint, floor, and wall coverings throughout the amenities. Smart technologies in the community spaces and within units were playing a vital role in a prospective renter's decision to sign a lease. With an increasing number of renters entering the market by choice, many of whom were downsizing empty nesters, it was essential that designers create an environment to appeal to those who left the comfort of their single-family homes behind (Johnson, 2019).

Community Design

More households were renters than at any point since 1965, according to Pew Research Center. To make the most of this growing pool of resident candidates, property owners and managers focused on offering the amenities renters prized (National Apartment Association, n.d.). Renters were looking for technology to make their life easier in the community's common amenity areas. Research showed that upgrades, such as a high-definition common room, were attractive. Forty-seven percent of residents requested a media room with smartphone-ready entertainment systems. Renters were likely to use outdoor areas for entertainment. Fifty-five percent of residents said that if they had access to a weather-sealed exterior area with a high-definition screen, they would use it at least once a month. Parking lot preferences were a major selector as residents did not like to struggle with finding a parking spot. Sixty percent said they would pay more every month for a reserved parking spot. Amenities such as a state-of-the-art fitness center were always attractive to prospective renters.

For student-housing providers and market-rate multifamily operators alike, offering programming and lifestyle experience options beyond the hardscaping of outdoor amenities was becoming key to attracting

and retaining residents in all kinds of markets, from college towns like Tempe to high-tech growth metros from Olympia, Wash., to Boulder, Colo. Once a hit-or-miss “build it and they will come” real estate strategy, ‘wow’-factor outdoor amenities were finding solid ground as renters embraced outdoor lifestyles and greater connectivity to their neighbors and communities. Indeed, while killer outdoor amenities provided a curb appeal vital to prospect tours and conversion, creating an activated sense of place also helped to power positive online reviews that boost marketing efforts and resident loyalty alike. “Particularly in student housing, but also more broadly across market-rate multifamily, consumption was shifting from the biggest and baddest and brightest to communities that fulfill needs-based lifestyles,” says Dalton. “People were coming to communities for an experience, and the more you could facilitate that, the more approachable your property would be to your target markets.” (Wood, National Apartment Association, 2020; Wood, <https://www.naahq.org/news-publications/units/april-2020/article/big-backyards-how-maximize-outdoor-amenity-spaces>, 2020)

Conveniences were also changing apartment design in some cases. For instance, McCauley said some apartments were continuing to shrink and evolve with technology. “With the popularity of food delivery services, people didn’t need the large kitchen space,” he said (Shaver, 2019). Developers had to be careful though, as empty nesters or middle-income boomers stepping down from homes would value the larger kitchen.

The Company - Mosaic Development

Mosaic Development focused on market-rate, multifamily-rental-development opportunities in strategic growth areas within the State of Florida, see exhibit 5 for examples. In addition, Mosaic led catalytic urban master developments with a mixed-use product approach, which served specific needs within each community. Mosaic had a great depth of experience in the public and private partnership arena, spearheading community-wide urban renewal efforts with notable results through transformative projects.

In 2015 and 2016, the Mosaic team members embarked on development opportunities in Ft. Myers, Bonita Springs, St. Petersburg, and Kissimmee, Florida, representing approximately 1,000 units of multifamily rental housing and 24,000 square feet of retail. The pipeline for future developments included Punta Gorda, Lakeland, Palmetto, Orlando, North Tampa, and other strategic locations in southwest and central Florida.

Mosaic Development comprised several seasoned real estate development professionals representing all the disciplines within the development, from inception to preliminary and finite financial modeling, site and building planning, design, engineering, and construction. Their operational team members provided in-depth guidance on market rent projections product absorption analysis to interim and stabilized expense forecasting (Mosaic Development Partners Who we are, n.d.).

Mosaic Development builds ground-up multi-family apartment communities with the intention of stabilizing them at 90% occupancy and selling them to investors known as merchant building. This business model positions Mosaic Development for rapid returns to their equity partners and the ability to reinvest in the future growth of the organization.

Strategic Imperatives and Marketing Objectives

The strategic imperative was to complete a successful lease-up and stabilize the community in 12 months at 92% occupation. To achieve this goal, the community would focus on the uniqueness of the its location

and features to achieve the desired and necessary rents that appealed to the demographics listed below in Market Segments and Targets.

Market Segment / Targets

Discretionary

The renter by choice is attracted to the higher-end rentals resort-quality living. These are individuals able to own a home but choose to rent. The renter by choice has substantial income and demands quality and high-end amenities.

High Mid-Range

The lifestyle renter is a household that typically has two income earners with no dependents, similar to the renter by choice but not in possession of the wealth associated with the renter by choice. This market segment is focused on finish quality and is looking for a more social experience in the apartment community.

Low-Mid Range

This household typically comprises working professionals, “gray collar” households such as policemen, firemen, teachers, and technical workers. At the same time, renters of necessity are inclined to discretion regarding rental environmental quality. They will opt for “adequate” quality improvements offering reasonably attractive amenities in a safe and convenient location.

Trends in Technology

Technology was evolving at a faster rate year after year. This rate of change would eventually become exponential with the emergence of Artificial Intelligence systems that could be created to learn how one lives and the addition of robots that did everything from vacuuming the floors to folding the clothes. The apartment of tomorrow would look quite different than that of today (Duggal, 2021). When building a smart building, what was most important was integrated and seamless telecom infrastructures. They were the backbone of a building’s technology. Whether it was Cat 6, 5G, managed WIFI, or a smart home network, this was the future of technology in new homes. Renters wanted strong cell and WIFI signals in all parts of the building, including the shared outdoor spaces and all their devices, to be managed thru one app (Haughey, 2020). For an apartment to be future-proofed it needed to be built with the future in mind.

Technology - Playing the guessing game

Mariano was looking into the different technologies that were new and interesting today, trying to predict what would be a fad and what renters would really want in the future. Given it took almost 3 years from conception to the end of the project, Mariano’s task was tantamount to a guessing game. In the past they had put in the technology and other times they put in only the conduit, which was much cheaper, so the building owner could choose when they were ready to add the technology. Conduit could be used for the Electric Vehicle (EV) chargers and the Primex Panels. This allowed for the ability to add additional technologies at less cost in the future. Another consideration was the consistency of using application-run smart technology to use multiple brands of products vs using all technologies from one brand with one application. Some of the applications charged a monthly fee while others were free.

They were finding that although renters may not have been willing to pay more for their smart apartments, the buildings with the technology rented faster and were higher occupied. There were many choices for technology. Per exhibit 1 we found that most renters would not pay more for technology, but they still wanted it.

Here were some examples of smart technology that Mariano was considering:

Smart Plugs/ Switches

Smart plugs allowed for control of the power supply of almost anything via smartphone or a smart speaker assistant like Amazon Alexa, Google Assistant, and Apple's Siri. Smart switches could replace lighting controls with something much more intelligent (Charlton, 2020). The cost for either was around \$15-\$20. The installation of a smart plug was free as one just had to plug it into the existing outlet. A Smart Switch required some electrical work, which could be completed for around \$150 with professional installation. A regular switch or power outlet was around \$2 each, making the cost significant in a large apartment complex. Allowing Smart Switches to be installed by the renter could become an issue. If not done correctly, they could cause fires and other damage to the apartment complex. Mariano had found these technologies to be too expensive and did not use them in any of his projects.

EV Chargers

Electric vehicles (EVs) were becoming more mainstream. 80% of charging occurred at home (Get EV Charging at Your Apartment or Condo, n.d.). EV owners were becoming a larger segment of the population and Mariano wanted to attract those renters to the apartment complexes. 15% of renters were looking to purchase an EV within the next 5 years (15% of Renters Anticipate Buying an Electric Car in the Next Five Years., n.d.). Also, cities like St. Petersburg, Florida were considering legislation requiring a certain number of chargers be installed on new developments. Adding the chargers was expensive, costing around \$38,471 at the time of building, costing \$6,083 to add only the conduit, and \$48,294 after the fact (Exhibit 4). The cost in the future would be varied, depending on location, whether part of the parking lot had to be removed, distance from the electrical panel, and if a new electrical panel needed to be added.

Mariano had installed both the chargers and the conduit in only some of the apartment complexes. EV chargers created a new management issue. Who got to charge when? Who paid for the electricity? How did you prevent non-EVs from parking in those spots? How did you alert users when their car was full? How did you prevent an EV from sitting in the spot after it had been charged?

Smart Thermostats

A smart thermostat was a Wi-Fi-enabled device that automatically adjusted heating and cooling temperature settings in the home for optimal performance (SMART THERMOSTATS, n.d.). They came from many brands with differing options. The per-thermostat cost for a smart thermostat ran between \$150-\$320 each, in contrast to a programmable thermostat which ran between \$60-\$140 (How much will your thermostat cost?, n.d.; see exhibit 2). Were the smart thermostats worth more than double the cost? Having smart thermostats did allow some management control of the units. Managers could change the temperature of the empty units without having to go into the unit. Energy use was managed more efficiently because the thermostat got to know you, learned your preferences, and made changes automatically which would reduce the energy costs to the renters.

Smart Parcel Lockers

Smart parcel lockers were the simple, modern solution to manage evolving package, mail, and asset delivery demands. They increased efficiencies and provided secure, contactless pickup options for

recipients at their convenience (ParcelPoint™ Smart Lockers, n.d.). Mariano thought back to only 5 years ago when parcel deliveries exploded, and the managers had to keep all the packages in their offices which closed at 6:00p, causing renters to become upset when they couldn't get their packages. Today companies like Amazon, UPS, and Pitney Bowes all have their own systems that allow renters to get a notification when they have a package. With the use of an app, renters could pick up their packages 24/7. The current challenge with parcel lockers was grocery deliveries and the lockers now requiring refrigeration. The cost of smart parcel lockers varied by branding, size and options.

App Controlled Building Entry

Apartment access control systems were installed at entryways, including garage entries. They allowed building owners and operators to keep doors locked securely while providing a straightforward way for approved people — residents, guests, and staff — to gain access (Kim, 2021). Mariano was installing systems in his apartment complexes on the main entrances only but there had been some challenges. What happened when a resident's phone died, or they lost their phone, or the door malfunctioned and would simply not open.

Primex Panels

Primex panels were premium engineered plastic media panels that provided WIFI transparency and flexible, reliable solutions for holding and organizing copper, coax, and fiber cables. The panel was the home's hub for technology and allowed all the homes smart technology cabling to be organized in one location (Primex, n.d.). These panels costed around \$50 each plus the cost of the conduit that the wiring had to go through. An after-the-fact installation would be incredibly difficult once the walls had been buttoned up. To retrofit, walls would need to be opened to complete all the wiring required.

The Decision

Mariano had a challenging decision in front of him. He understood that renters had evolved; therefore, the apartment communities had to evolve in lockstep. At Mosaic Development, developing a new apartment community took approximately three years from start to finish. This created a challenge for Mariano. He needed to understand the smart technology that should be included in his developments and determine which technology would stand the test of time and be relevant three years later. Technology that was considered a premium today could be a normality in three years, with new, innovative technology leading the industry as a premium. Mariano and the team began with a due diligence process to determine whether a piece of land was advantageous for building an apartment community. Next, they considered physical aspects of the site such as soil condition, endangered species that inhabited the land, wetland impact, and legal factors that could encumber the real estate. Then other market-driven data was considered, such as the location, the area's economy, employer base, and targeted demographic. Once they agreed to move forward, Mariano began to work on the site plan, floorplans, and amenities for the project with his team. It was during this phase that Mariano considered whether he should include smart home technology in the project.

Mariano contemplated continuing with only the baseline technology necessary for the given market that he was building in, based on the competition and local ordinances – i.e., the bare minimum. With his new development, other competitive local apartment communities led to his decision to include specific technology such as smart locks, package lockers, and a restricted access control system. These items were generally expected in specific markets and did not command a higher rent or increase the development value; therefore, if it was included in your competing properties, you had to include it to be competitive. Since Mosaic Development was a merchant builder, they built the property and sold it after it was fully

occupied. They were typically only concerned with leasing up the property and selling it to a buyer. The new buyer could consider adding smart technology and raising rents.

He contemplated adding more premium or next-level smart home technology to remain competitive in the marketplace. However, this option would add cost to the overall development. In addition, he questioned whether residents would pay more rent for smart home technology. If not, then the return on the investment would not easily be visible, as evidenced by an increase in rent. Instead, his development would be more competitive in the market, and the property would lease up faster, ultimately lowering the lost vacancy dollar amount. When vacancies were lower, and the development leased up quickly, the development had a higher Net Operating Income (NOI) – which was income minus expenses. A higher NOI equates to a higher sales price and, in turn, delivers more profit to the development company.

Mariano also considered a phased approach. In this scenario, the project could install smart home technology in a percentage of the apartments and not in the remaining apartments. This scenario would reduce the cost of installing the technology and allow the residents to decide if they wanted to pay a premium for the upgraded units.

The final option he considered was adding the infrastructure or conduit for smart home technology. This would come at a minimal cost comparatively and make it easier for a buyer to install smart home technology in the future. In addition, this would allow the building to command a slightly higher sales price and produce a moderately higher profit for the development company.

Mariano had a decision to make, and his team was anxiously waiting for him to finish his research. He could:

1. Do nothing and continue with the existing development model.
2. Add more premium or higher-level smart home technology to be more competitive in the marketplace. Would this scenario produce a higher rent, or would it only lower vacancy and increase leasing velocity?
3. Consider a phased approach by including smart home technology in a percentage of the units and not in the remaining. This approach was often selected by developers because the cost was much less than implementing throughout the entire community, while offering the technology to those willing to pay a slightly higher rental amount.
4. Build the infrastructure or conduit to install smart home technology in the future.

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Biographies



James Chestnut graduated from the University of South Florida with a Master of Business Administration degree. He is a Certified Property Manager with the Institute of Real Estate Management and a Certified Apartment Portfolio Supervisor through the National Apartment Association. He has 25-plus years of successful real estate development, asset management, and property management experience. He is currently the Senior Vice President of Incore Residential, where he provides leadership and direction to ensure that business strategies and goals are achieved.



Robert Giles received a bachelor's degree in engineering and business management from the U.S. Air Force Academy and his Master of Business Administration degree from The University of South Florida. He has 13-plus years of experience within the electrical construction industry, focusing on both private and public works commercial projects. He is responsible for facilitating project estimates and developing/managing project budgets including material, labor, and general expenses, and managing field supervisors and electricians on site. He is also responsible for buying out and coordinating installation for the systems project managers and installers. For the past five years, he has served as founder and coach of Team Giles Fitness, offering health and fitness coaching and training services that have helped hundreds of clients reach their health and fitness goals.



Lydia Howard graduated from the University of Connecticut with a major in Human Development and Family Relations with a minor in Criminal Justice. She received her Master of Business Administration degree from The University of South Florida. She has 17-plus years of experience in entrepreneurship, during which she successfully managed a dental business, consulting firm, real estate holding company, and an invention business.



Rajiv Patel earned a bachelor's degree in biology from Nova Southeastern University and a medical degree from St. Matthew's University School of Medicine in Grand Cayman. Rajiv earned his Master of Business Administration degree from The University of South Florida. He leads the clinical team that helps get patients the care they need. He evaluates patients for social determinates of health, and he and his team close gaps that vary from health care to basic transportation needs. Patel also serves as a medical director at Physician Partners, where he works with physicians across the state to help manage high-cost patients and missed chronic conditions. His passion is the prevention of disease and making sure patients get the best health care they deserve. He also manages a team of provider educators that help providers identify training needs for doctors and other medical staff members to improve the quality and accuracy of documentation. He helps identify suspect medical conditions and brings these to the attention of the provider.

Exhibit 1: Rental Survey

Rental Survey- Surveypalnet.com, distributed through Facebook.com on August 21, 2021

Q1 Do you rent or own the place where you live?

Responses 22 Answered 22 Unanswered 0

	Choice	Totals
•	Own	5
•	Rent	17

Q2 What kind of home are you renting?

Responses 22 Answered 17 Unanswered 5

	Choice	Totals
•	Single Family Home	5
•	Multi Family Home	0
•	Apartment Community	12

Q3 What is your age?

Responses 22 Answered 17 Unanswered 5

	Choice	Totals
•	18 to 24	1
•	25 to 34	1
•	35 to 44	6
•	45 to 54	4
•	55 to 64	4
•	65 to 74	1
•	75 or older	0

Q4 How much do you pay for rent?

Responses 22 Answered 17 Unanswered 5

	Choice	Totals
•	\$0-\$1000	2
•	\$1001-\$2000	9
•	\$2001-\$3000	5
•	\$3001-\$4000	1
•	More than \$4001	0

Q5 Which technologies would you like in your home (check all that apply)?

Responses 22 Answered 16 Unanswered 6

	Choice	Totals
•	Connected Speakers	5
•	Automatic rising and lowering blinds	5
•	Smart Lock / keyless entry (uses an app or fab)	7
•	Smart thermostat that uses an app or control panel to be controlled	10
•	Smart sensors (Fire/ CO2 and leak detectors)	11
•	Voice controls for smart technology	4

- Smart devices (lighting, outlets, switches) 9

Q6 Which technologies would you like in your rental community (check all that apply)?

Responses 22 Answered 14 Unanswered 8

Choice	Totals
Package Lockers (Amazon Lockers)	7
Electric Car Chargers	4
Keyless Building Entry System	7
WIFI in Community Spaces	6
Video panel connected to the building entry system that uses an app or screen in your apartment	5

Q7 How much more rent would you pay for the technology, you have checked above?

Responses 22 Answered 16 Unanswered 6

Choice	Totals
None- I would not pay extra for technology.	13
\$50/ month	3
\$100/ month	0
\$150/ month	0
\$200/ month	0
\$250/ month	0

Q8 When choosing a rental home rate, the factors that go into your choice.

Responses 22 Answered 17 Unanswered 5

Choice	Score	Average
Cost	78	4.59
Location	80	4.71
Amenities (Pool, Gym, Club House, Etc.)	61	3.59
Smart Technology	27	1.59

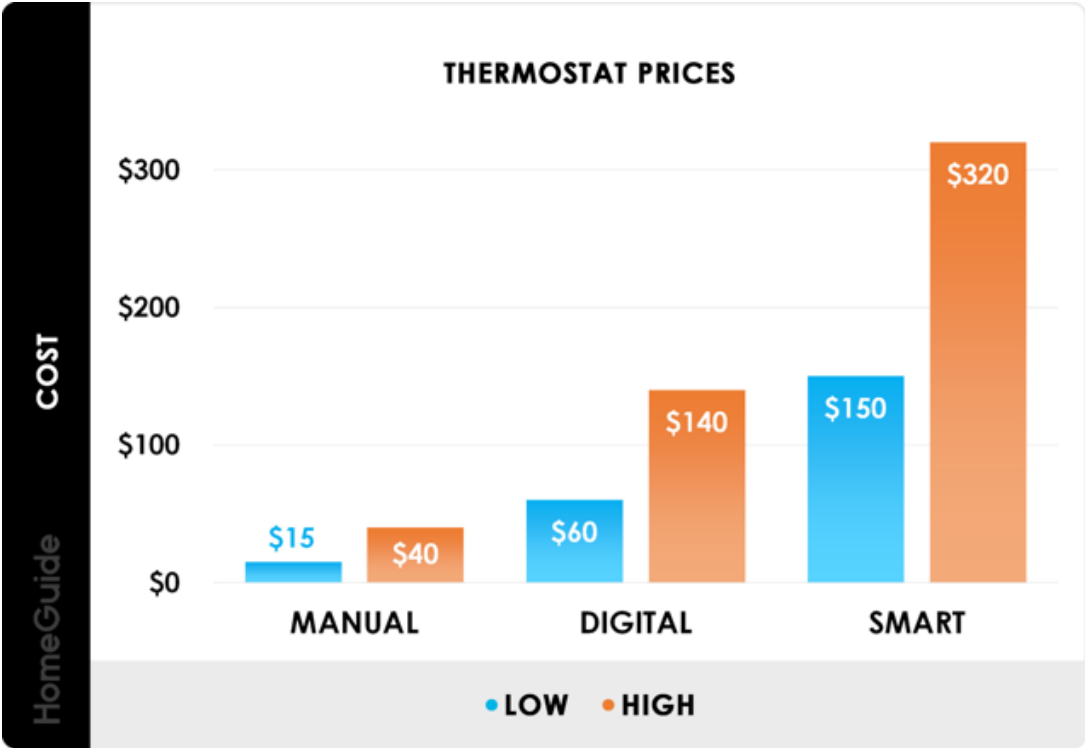
Q9 With the rising rental rates, would you be more apt to rent a cheaper place with no technology?

Responses 22 Answered 17 Unanswered 5

Choice	Totals
Yes	15
No	2

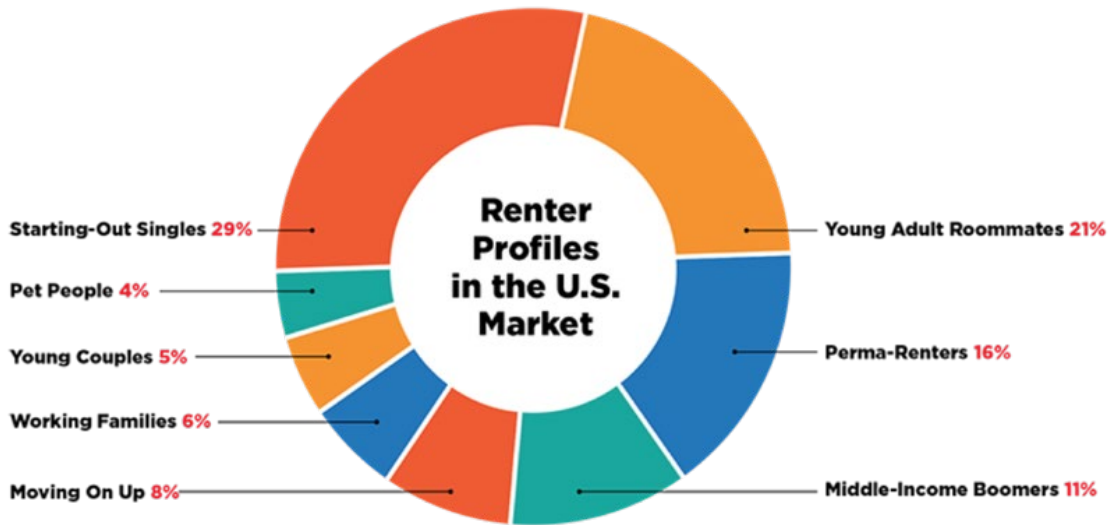
Source: Facebook Survey

Exhibit 2: Thermostat Prices



Source: <https://homeguide.com/costs/thermostat-installation-cost>, Home guide

Exhibit 3: Rental Profiles in US



Source: <https://www.naaahq.org/news-publications/units/december-2018/article/today-renters-demographics>, NAAHQ, 2018

Exhibit 4: Cost of EV Chargers

Proposed Change Order Pricing

PCO# USF CASE STUDY EV CHARGER A
 PCO Date 11/22/2021
 Prepared By:
 Date: 4/1/2022
 Project Name: Modera Gulch
 Project Number: Modera Gulch
 Page Number: 1

Work Description

Optimus Energy Solutions, LLC
 USF Case Paper Example with Rough-in and Install after construction

Itemized Breakdown

Description	Qty	Total Mat.	Total Hrs.
1 1/4" CONDUIT - EMT	620	2,466.05	48.36
1 1/4" CONN COMP STL - EMT	8	11.97	4.00
1 1/4" COUPLING COMP STL - EMT	64	110.35	16.00
1 1/4" BUSHING - PLASTIC	8	1.77	1.68
1 1/4" 1-H STRAP - EMT - STEEL	124	49.72	6.57
# 6 THHN BLACK - CU	1,428	1,266.78	19.64
# 8 THHN STRANDED GREEN - CU	684	392.96	7.70
WIRE CONN BLU	16	9.79	1.60
1 5/8x 1 5/8x 12G STRUT SLOTTED HOLE GALV	100	613.99	15.00
1/4-20x 1 3/4 WEDGE ANCHOR - 1 1/8" MIN DEPTH - SD1	124	37.09	24.80
50A 2P BREAKER BOLT-ON	4	494.72	3.20
CAR CHARGER - DUAL STATION - FLOOR MOUNT	4	0.00	12.00
EV CHARGER INSTALL	4	0.00	24.00
Totals	3,188	5,454.18	184.54

Summary

General Materials		5,454.18
Material Tax (@ 7.500 %)		409.06
Total Material		5,863.24
Electrician (184.54 Hrs @ \$55.00)		10,149.70
Foreman (18.45 Hrs @ \$65.00)		1,199.25
Subtotal		17,212.19
Markup (@ 10.000 %)		1,721.22
Subtotal		18,933.41
CORING		1,200.00
CHARGEPOINT EV CHARGERS		28,161.00
Subtotal		48,294.41
Final Amount		\$48,294.41

ORIGINAL

Proposed Change Order Pricing

PCO# USF CASE STUDY EV CHARGER B
PCO Date 11/22/2021
Prepared By:
Date: 4/1/2022
Project Name: Modera Gulch
Project Number: Modera Gulch
Page Number: 1

Work Description

Optimus Energy Solutions, LLC
 USF Case Paper Example with Rough-in and Install Before Construction

Itemized Breakdown

Description	Qty	Total Mat.	Total Hrs.
1 1/4" ELBOW 90 DEG - RMC - GALV	8	150.08	6.00
1 1/4" LOCKNUT - STEEL	8	2.99	1.68
1 1/4" CONDUIT - PVC40	500	1,251.90	37.50
1 1/4" COUPLING - PVC	8	2.88	0.00
1 1/4" ADAPTER FEM - PVC	8	8.37	2.00
# 8 THHN STRANDED BLACK - CU	552	269.98	6.21
# 6 THHN BLACK - CU	1,152	1,021.94	15.84
50A 2P BREAKER BOLT-ON	4	494.72	3.20
EV CHARGER INSTALL	4	0.00	24.00
Totals	2,244	3,202.86	96.43

Summary

General Materials		3,202.86
Material Tax	(@ 7.500 %)	240.21
Total Material		3,443.07
Electrician	(96.43 Hrs @ \$55.00)	5,303.65
Foreman	(9.64 Hrs @ \$65.00)	626.60
Subtotal		9,373.32
Markup	(@ 10.000 %)	937.33
Subtotal		10,310.65
CHARGEPOINT EV CHARGERS		28,161.00
Subtotal		38,471.65
Final Amount		\$38,471.65

ORIGINAL

Proposed Change Order Pricing

PCO#	USF CASE STUDY EV CHARGER R
PCO Date	11/22/2021
Prepared By:	
Date:	4/1/2022
Project Name:	Modera Gulch
Project Number:	Modera Gulch
Page Number:	1

Work Description

Optimus Energy Solutions, LLC
USF Case Paper Example with Rough-in Only

Itemized Breakdown

Description	Qty	Total Mat.	Total Hrs.
1 1/4" ELBOW 90 DEG - RMC - GALV	10	187.60	7.50
1 1/4" LOCKNUT - STEEL	10	3.74	2.10
1 1/4" CONDUIT - PVC40	625	1,564.88	46.88
1 1/4" COUPLING - PVC	10	3.60	0.00
1 1/4" ADAPTER FEM - PVC	10	10.46	2.50
Totals	665	1,770.28	58.98

Summary

General Materials		1,770.28
Material Tax	(@ 7.500 %)	132.77
Total Material		1,903.05
Electrician	(58.98 Hrs @ \$55.00)	3,243.90
Foreman	(5.90 Hrs @ \$65.00)	383.50
Subtotal		5,530.45
Markup	(@ 10.000 %)	553.05
Subtotal		6,083.50
Final Amount		\$6,083.50

ORIGINAL

Exhibit 5: Mosaic Development Portfolio Example

Mosaic at Oak Creek



Type: Apartment Community, Mixed-Use Development

Location: Bonita Springs, FL

Unit Count: 273 Apartments

Project Description: The 17.5-acre site is located on Oak Creek and Old US 41, immediately south of the town center of Bonita Springs. This area is recognized as the heart of Bonita Springs and includes active and passive recreation opportunities, shopping, dining, retail, and a wide range of nature-based attractions and outdoor recreational opportunities, a full annual calendar of events, fascinating regional history and heritage, and a significant concentration of cultural attractions and performing arts. Direct kayak access to the Gulf of Mexico is available via Oak Creek. The 273-unit development contains a mix of one-, two-, and three-bedroom units. The property is set in a natural setting that is gated, with a full complement of amenities including a sparkling pool, outdoor kitchen, game and club room, co-workspace, a club-level fitness center, dog park, dog wash, parcel management services, and wi-fi café for resident use. In addition, the overall development includes 10,000 square feet of general commercial space at the western edge of the property along Old US 41, with 9 one-bedroom units above.

Lake Toho Redevelopment



Type: Mixed-Use, Master Development

Location: Kissimmee, FL

Unit Count: 300 Apartments

Project Description: Mosaic was selected by the city to redevelop 11 acres of vital land in downtown Kissimmee, directly across from Lake Toho and the City's Waterfront Park, which recently underwent a \$34M upgrade that also included streetscape and utility enhancements. The site is two blocks from a multimodal transit station that offers SunRail and Amtrak commuter and passenger rail service and serves as a regional hub for bus service. The project included 300 apartment units (studio, 1, 2 and 3 bedrooms), 10,000 SF of commercial space and a 120 key hotel. To accommodate downtown visitors, the city built a 393-space parking garage that offers 39 parking spaces for the hotel use. The apartments were built as a four-story luxury apartment community with concierge level resident amenities including club and game rooms, co-work lab space, a two-level fitness center and yoga room, a resort-level pool and a pool deck with outdoor kitchen facilities, inside bike storage, and parcel management. The Florida Vernacular architectural style was selected in coordination with City staff and is sensitive to and complements the existing architectural fabric of the community.