Advancing Sustainability with your HOA or MUD

Implementing Solar Energy and Electric Vehicle Charging Systems in Associations and Multi-Unit Dwellings:

What can you do?

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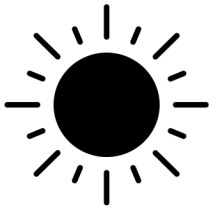
Purpose Statement

Living within Homeowners Associations (HOAs), Multi-Unit Dwellings (MUDs), condo associations, and other co-housing communities can create challenges for residents wishing to pursue the installation of solar panels and/ or electric vehicle chargers.

This document contains resources and case studies for residents and decision makers living and working in these settings to better overcome barriers and challenges through a variety of potential solutions. While this document divides the challenges by solar and EV charger installation, challenges and solutions are often universal and can be widely applied to various types of infrastructure.

The potential solutions presented have been informed by both interviews with Washtenaw County residents who have been successful in negotiating with their HOA or MUD, as well as secondary resources. The appendix section also holds key information about current technologies, resources, and other useful materials.

Benefits of Solar and EV Chargers



Solar Power

In addition to producing renewable energy and reducing emissions, on-site solar can be a great way to increase property value

Solar increases homes sales price by 4%, on average [1].

Homes with solar spend on average 13.3% less time on the market.

Homes with solar are 24.4% more likely to sell over asking price [2].

EV Chargers

As the EV industry grows, so is the demand for EV chargers and benefits associated.

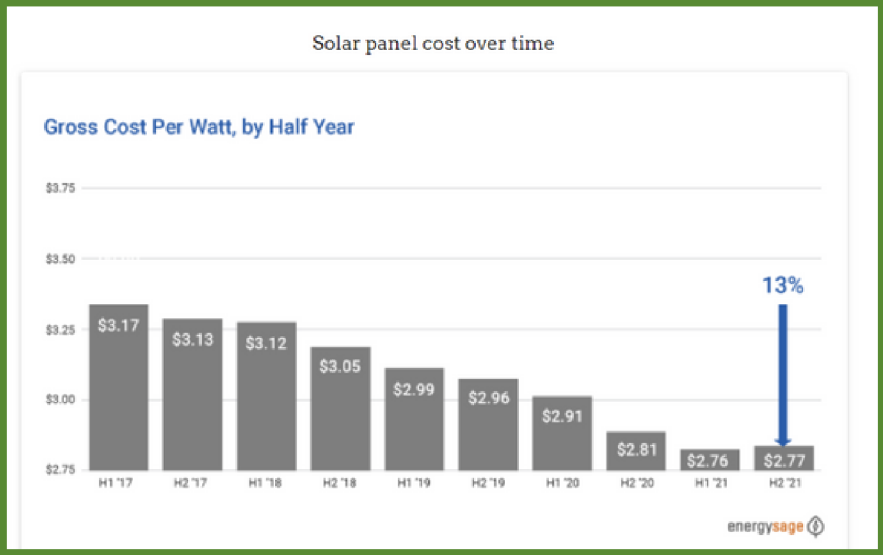
Proximity to EV chargers can increase homes value by 5.8% compared to homes further away [3].

In a survey by the National Multifamily Housing Council, 27% of respondents were interested in purchasing an EVs.

Respondents were also willing to pay an additional $28/month for this amenity [4].

Cost Trends and Overview

Cost can be a barrier to installing solar systems and/or electric vehicle chargers, but evolving technology, incentives, and programs can greatly reduce these costs. The industry is growing, and for solar and EV chargers, this means prices are dropping while demand is increasing. Solar panel installations have been breaking records for six years in a row, with an "annual average growth rate of 33%" according to the Solar Energy Industries Association (SEIA) [5]. At the same time, EV charging points are projected to expand by tenfold between 2022 and 2030, with 80 percent of this infrastructure being residential installations [6]. Additionally, the International Council on Clean Transportation (ICCT) estimates that hardware costs for EV chargers will decline at approximately three percent annually [7]. Solar panel cost is also trending down. See graph below from Energy Sage on solar panel costs over time [8].



Financial Incentives and Resources

Inflation Reduction Act

The Inflation Reduction Act (IRA) of 2022 provides a federal income tax credit of 30% for solar panel installation (uncapped). This incentive is available until 2032. Learn more about the IRA at: https://www.energy.gov/policy/articles/making-our-homes-more-efficient-clean-energy-tax-credits-consumers [9]

Michigan Saves

Michigan Saves offers low-interest financing for residential and commercial improvements that enhance sustainability. The eligibility screening and application process along with the loan rates can be found online at: https://michigansaves.org [10]

DTE Energy Rebates

DTE Energy provides rebates for Level 2 EV charger installation through the Charging Forward program. After purchasing or leasing an EV and installing a qualifying charger, you can apply to the Charging Forward program to receive a $500 rebate for residential projects by enrolling in a Time-of-Use (TOU) plan, and $2500 for commercial installations. Learn more at: https://www.dteenergy.com/us/en/residential/service-request/pev/pev-res-charge-frwd.html [11]

Solarize

The City of Ann Arbor provides the opportunity to engage in community-based group-buy programs for installing solar panels. Each group-buy is hosted by an Ann Arbor resident and their installer, and establishes a discount structure to reduce costs and distribute solar at a large scale. This program is available for residents throughout Washtenaw County. More information can be found at: https://www.a2gov.org/solar [12]

Ann Arbor Climate Millage

Locally, Ann Arbor's new Climate Millage will support residents in the pursuit of improving green home infrastructure using tax revenue generated from property taxes. Rebate roll-out is expected in late 2023.

Section One: Common Barriers to Solar

Investigating concerns related to bylaws and rules; aesthetics and external modifications; and ownership and regulation

Challenges to Solar Adoption

Rules and Modifications Page 17

Many HOAs and MUDs have preexisting bylaws or regulations in their constitutions. These may need to be revised or overturned, or else exemptions to the bylaws will need to be created in order to enable solar adoption.

Aesthetics and External Modification Page 9

One of the issues some residents in Associations face when looking into solar installment is a concern about aesthetics. Solutions in this section will center around myth-busting and visually appealing solar power.

Shared Roofs and Common Elements Page 12

Who is responsible for maintenance? In a MUD, how does the roof get divided in the case of someone wanting solar? Dividing and sharing costs, responsibility, and benefits of solar panels can be a challenge for planning and installation.

Rules and Bylaws

Overview of the Problem

Currently, 25 states have "solar access" laws prohibiting HOAs from banning solar for their residents [13]. Unfortunately, Michigan is not one of them. Therefore, many HOAs in Michigan can have bylaws or rules that do not allow residents to install solar panels. These regulations can be based on concerns regarding aesthetics, uniformity, property values, liability, maintenance, or just unfamiliarity with the technology and changing norms.

Considerations

- What prohibitive bylaws does your HOA/MUD currently uphold?
- Are other residents interested in supporting the change you wish to make?

Tenants wishing to enact a change to the verbiage in their HOA's laws and regulations must seek a rule change. Fully amending bylaws is one option, though there are also mechanisms such as passing addendums or integrating modification request forms to streamline the approval process, which can be an easier lift.

Modification Request Form

- Document can be drafted with the Board and should outline projects that can qualify for an external modification application.
- Resident fills out form and sends to Board for approval.

Addendums

- Adds additional information to existing contract.
- Does NOT alter original bylaws or documents.
- Individual lease agreement between homeowner and HOA board.

Bylaw Amendments vs. Addendums

Introduction

Changing bylaws in your housing governing body comes in two forms: amendments and addendums. Both can be useful tools for change-making in a governing body, but typically creating an addendum is a more accessible, timely, and simple process.

Amendments: An Overview

Amendments are the mechanism to alter language in an original document or contract. For most HOAs and housing governing bodies, amendments require either a two thirds or three quarters vote from the entire voting population (i.e. an entire condo association or all residents under the same HOA). This can be both difficult and time-consuming, depending on the size and buy-in of the HOA community.

Addendums: An Overview

Addendums do not change the verbiage in the original document, but can add information or expansions onto bylaws, covenants, or clauses in existence. Clarification and specification of language are some of the primary functions of addendums. The process of implementing an addendum can vary greatly by regulatory bodies and housing types, but can be a simpler process than pursuing Amendments [14].

Aesthetics and External Modifications

Overview of the Problem

Uniformity is highly valued by many HOAs, so modifications such as solar panels that can disrupt this aesthetic preference may be unfavorable to your HOA board. There are often bylaws prohibiting external modifications, creating an additional barrier to solar installation.

Considerations

- Does your HOA/MUD have an external modification bylaw prohibiting aesthetic changes to your exterior?
- If so, is there an appeals form for individual permission to make external modifications?

Some accommodations such as all-black solar panels can be a straight-forward and widely acceptable compromise for HOAs. However, some Boards may recommend limitations to installing solar such as avoiding street-facing panels or requiring written approval from all neighbors. These stipulations are not equitable, as many roofs' solar opportunity may not be in the back of the home. These compromises are less-than-ideal and not recommended.

All Black Panels

- These panels have a black backsheet and frames instead of white/silver, giving a uniform appearance and less visible "grid."
- Have very small loss in efficiency compared to traditional panels that will likely be negligible to the average residential consumer.

External Modification Appeals

- Create a process for residents to apply for an exception to external modification bylaws.
- This would likely be a form drafted with the agreement of the governing board and other stakeholders.
- Sample form in appendix.

Case Study 1: Traver Lakes Community Association

Overview

Traver Lakes Community Association is a neighborhood with a variety of housing types, including condos, apartments, and single-family homes. Condos and apartments have shared roofs while the single-family homes have individual roofs. The neighborhood is interested in solar access for people in all building types, each of which have different needs and potential solutions. However, this case study focuses on the single family homes, as Traver Lakes Community Association has made some excellent advances for these residents

Barrier to Installation

Neighborhood association policy previously required homeowners interested in installing solar panels to gather written consent from all neighbors that were within street view of the home. This mechanism of approval was both time-consuming as well as inequitable.

Case Study 1, continued

Solutions
Many homeowners and HOA Board members were interested in pursuing solar for their personal use, as well as reducing barriers for others in the neighborhood to move forward with solar. The community created a Solar Committee invested in spreading solar throughout the complex.

The Solar Committee has researched and provided recommended solutions, operating within their rules and regulations, as well as conducted educational outreach and engagement activities with residents to help advance solar installations in the Association. This work includes:

- Altering language in Board documents to enable widespread solar adoption
- Designing a template for external modifications to expedite solar approval
- Hosting a "Solarize Ann Arbor" group-buy event for their community in early summer 2023, successfully bringing multiple solar projects into the neighborhood and paving the pathway for more.
- Creating a framework to pursue solar access for the condo and apartment buildings

See Appendix for language and documents.

Shared Roofs and Common Elements

Overview of the Problem

Roofs are typically a shared resource in MUDs and communities need to reach agreements on how to define ownership, as well as placement of panels in the case of shared roofs.

Considerations

- What is the configuration of your shared roof (i.e. is it townhouse-style with a singular roof, adjoining roofs of condo units, etc)?
- How many tenants are interested in pursuing solar? This is especially important in the case of connected roofs.
- What bylaws may limit use of shared space for solar and what are the options for amendment?

Collective Decision

- Best-case-scenario, all residents in a shared roof setting will reach a unanimous decision about whether to install solar.
- This provides a collective action and bargaining power to engage housing associations if needed.

Division of Shared Source

- In the case not everyone is interested in solar, it may require negotiations and decision-making to divide shared roof space.
- See Case Study 2 for an example of roof division.

Shared Roofs and Common Elements Continued

In MUDs, how to position solar for use by individual homeowners needs to be agreed upon. For example, in the case that four units share a roof, but one unit is not interested in solar, how can the roof space be divided to provide equal access to solar? Keep in mind that Michigan law dictates that each solar array may only offset the electricity of a single meter. Therefore, solar generated from panels on a MUD must be used either for a common space such as a clubhouse, or else the arrays must be installed separately to offset individual meters.

There is an alternative to solar arrays feeding only one meter, which is community solar. Community solar creates a system where people can benefit from solar even if they are unable to install panels on their own roof, by leasing or purchasing panels in a community-wide system. They then pay electricity bills based on their individual use of the shared solar system [15]. This can be a cost-effective option for people who are unable to install solar on their own roofs, perhaps due to roof condition, shady sites, financial constraints, or because they are renters and do not own their properties. Unfortunately, Michigan law does not currently enable true community solar (though it does allow utilities to create and own their own "community solar" programs) [16].

To learn more about community solar enabling legislation, contact your local and state legislators or visit the Michigan Community Solar Alliance website at https://www.micommunitysolaralliance.com/who-we-are [17].

Shared Roofs/Common Elements Continued

If your MUD chooses to allow solar, but not every unit wants to participate, the next step may be to discuss with an architect and/or attorney to consider options. This is especially the case if the roof is continuous (no space directly above unit that would be a natural cut-off of one property to another) or some areas of the roof are more conducive to solar, and those areas lie above a unit uninterested in solar.

Oftentimes, working with an attorney and architect to analyze the blueprints with cohabitants of a MUD will lead to efficient and equitable results. Residents or owners in a MUD or HOA typically opt-in to solar, and therefore take on the financial responsibility. This is especially true if the solar system is individualized for each unit. If the solar is a community resource, providing electricity for a community space, the configuration can be more straightforward.

Case Study 2: A Kerrytown Condo

Overview

This property has four units within a single building, sharing a single roof. The property has a condo association, and the roof was designated a “common element” prior to the community initiating their solar project.

Barriers to Installation

There were a few major barriers to overcome in this case. The roof’s original definition as a common element did not allow for modifications by individual homeowners. In addition, the bylaws at the time indicated that solar was not allowed in the association. Both required bylaw revisions to enable residents to adopt solar.

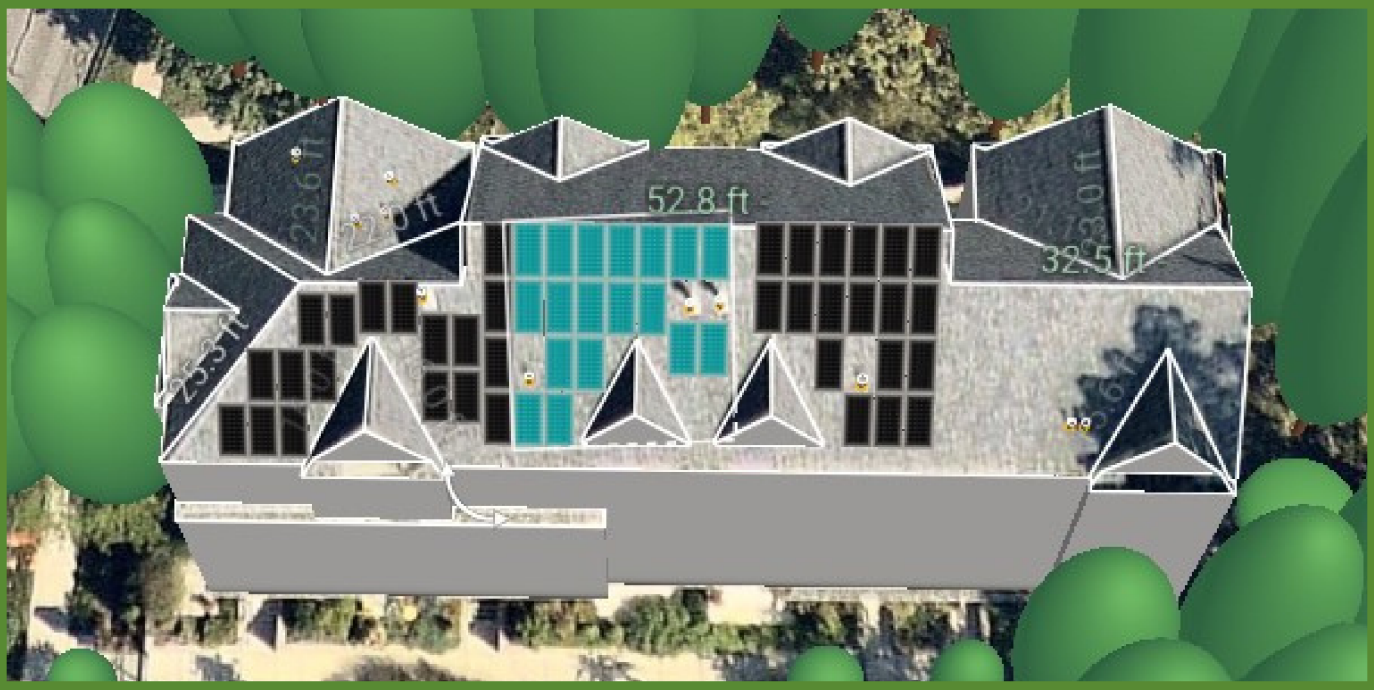
Additionally, one of the four residents did not want to pursue solar. The homeowners needed to create a plan that enabled three to move forward and allowed for a potential future tenant of the fourth unit to add solar if they wished.

Finally, the architecture of the building meant that panels supplying an individual unit would need to exist on the roof beyond the immediate footprint of the unit below.

Case Study 2, continued

Solutions

First, the roof had to be reclassified from a common element to a "limited common element" in the bylaws of the HOA. Common elements are those that are for use by all homeowners and are owned and maintained by the Association. Limited common elements are a bit more complicated, as they are "a portion of the common elements reserved for the exclusive use of one or more, but less than all, the units" [19]. For example, a front stoop can be a limited common element. The responsibility for general upkeep (eg: snow removal) falls to the resident, but more intensive maintenance to the Association. This redefinition enabled residents to delineate maintenance issues: the owners would be responsible for general upkeep of their own solar equipment, while the Association would handle larger scale issues, such as roof repair or replacement.



Above is the solar plan as drafted by the solar installation company.

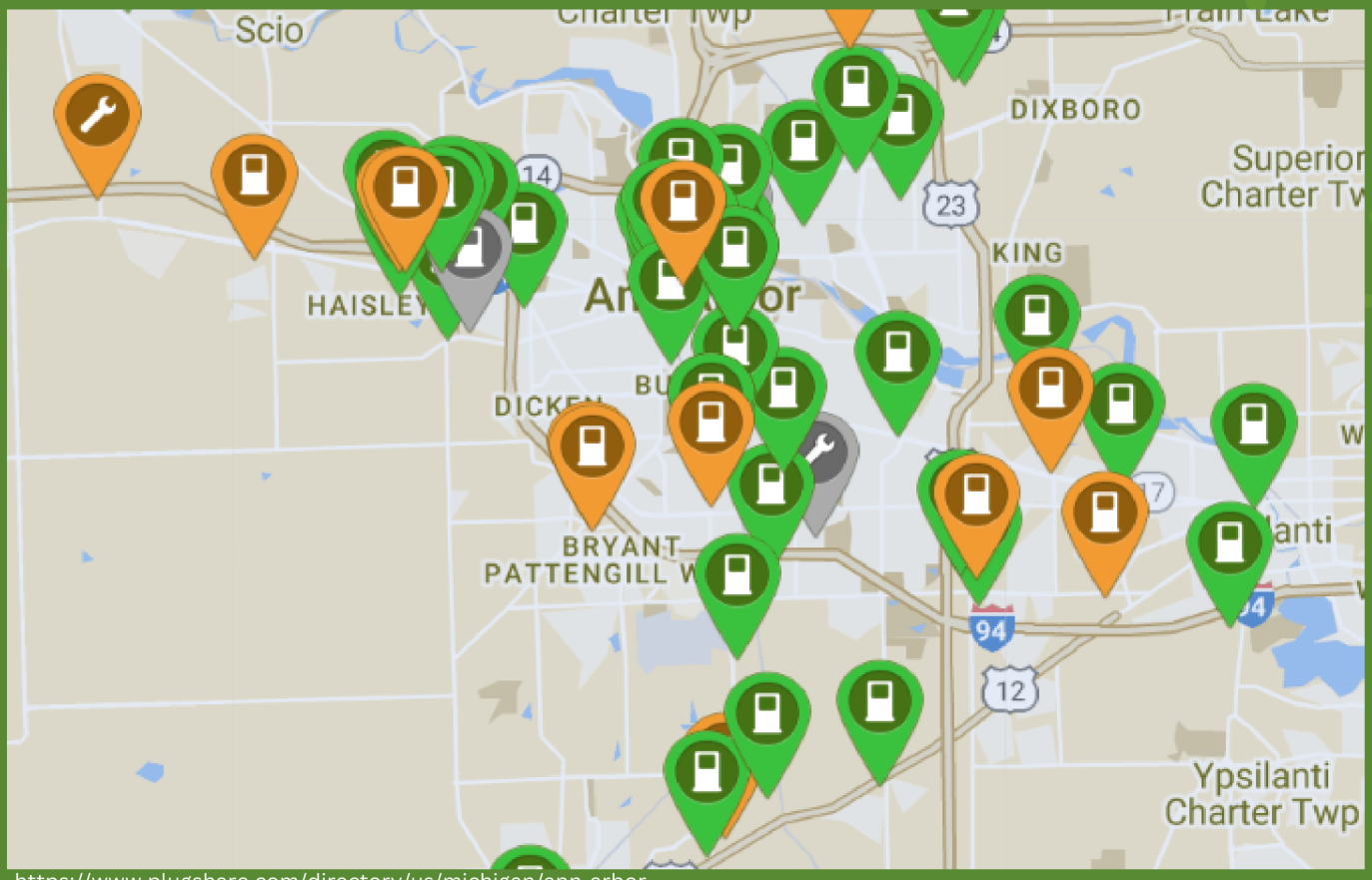
Case Study 2, continued

However, the bylaws still did not allow for solar and required an amendment to overcome this as well. In this case, the residents enlisted the help of an attorney to draft the bylaw amendments, as the community decided to make other changes in their bylaws as well, at the same time. From there, they had to pass the amendments with a 2/3 vote of approval from the entire condo association body (in this case, only 4 units).

After the amendments were passed, the residents began drafting a solar installation plan with an installer. Roof space dictated room for 18 panels per unit. Each solar system is wired to an individual units' meter, but roof configuration meant that panels may lay across the borders, or walls, of that designated unit, to ensure optimal sun exposure. There is also a section of empty roof allotted to the fourth unit, in case future residents choose to install solar.

Because the solar systems reach beyond the four walls of an individual unit, the residents worked with an architect to revise the original architectural plan to include new easements. This would not have been necessary if each individual solar system was placed directly above the unit it powered. The new architectural drawings (with easements) were then submitted to the City of Ann Arbor upon completion of the project.

Section Two: Common Barriers to EV Chargers



https://www.plugshare.com/directory/us/michigan/ann-arbor

Challenges with EV Charger Installation

System Design **Page 20**

Considering what type of parking system is already in place and how an electric vehicle charging system would be integrated into that design can be a challenge to the installation of EV chargers.

Electrical Constraints **Page 24**

Electrical constraints can include electrical panel placement, high costs of trenching parking lots to install chargers, and overall capacity limits. All of these issues can require time and resources to analyze and address.

Ownership and Maintenance **Page 28**

Deciding who will pay for the installation and upkeep can be tricky. Incorporating smart technologies and systematizing a cost plan are two simple mechanisms to discuss before installation,

System Design

Overview of the Problem

In multi-unit dwellings with shared parking lots, installing EV charging installations requires careful planning and agreement on who gets to use the chargers, when they get to use them, for how long, where they will be located, and how to regulate the usage to make sure all residents in need of EV charging are able to access it.

Considerations

There are multiple additional nuances that arise when considering individual situations, including, but not limited to, the following:

- How many units are in your MUD?
- How many tenants own or are planning to own an EV?
- What time(s) of day would be ideal for you to charge your vehicle? What time(s) of day would be ideal for other EV owners in your MUD to charge their vehicles?
- Does your parking system assign spaces to tenants? Or is the parking lot free for use by any resident?
- How do you expect to future-proof your installation? Will you/your MUD want to expand charging in five years?
- Who is responsible for operating costs?

These issues can be tricky to negotiate and overcome, but are necessary in order to adequately share access to charging.

Shared Charging

- Incorporating an EV charger in a communal parking space can often reduce the burden of system design/redesign.
- Shared chargers can also be publicly accessible.

Networked Chargers

- Networked chargers can gather information on usage time, and bill users for their share of electrical costs.
- These can track individual use and divide billing accordingly.

System Design Continued

Considering what to include in your plan for an EV charger installation in a MUD requires investigating your electrical capacity, desired system size, and budget, among other factors.

The meter which an EV charger is connected to will be associated with an electrical account. This account will be responsible for the payment of the electrical bill associated with charger use. This can be a deterrent for individuals or complexes to install charging, as they often want the charger users to pay the cost of electricity rather than the owner of the electrical meter. Networked chargers and smart plugs can allow costs to be distributed among users directly, so the owner of the electrical meter does not bear the entire cost of operating the charger.

Networked chargers are one mechanism to control both payment and use structure. These chargers, depending on the technology chosen, can regulate usage with reservation systems, charge the user for the cost of electricity, monitor station usage, and more. This is an excellent tool for MUDs/HOAs where an EV charger will be a shared source for owners, especially in a parking lot without assigned spaces.

Similarly to a networked charger, smart plugs can offer the same data tracking and usage monetization features, but at a lower cost. With the purchase of a Level 1 charger, a smart plug can be connected to ensure MUDs can collect data, divide costs, and receive compensation for the electricity use. Smart plugs come equipped with a QR code for users to scan at the beginning of their charge, which then tracks their usage and can calculate individual cost accordingly. Installing these smart plugs can be more cost effective than other solutions because users only need a Level 1 charger, which are less expensive than traditional L2 chargers. The major downside to this charging system is they typically only charge at a slow speed. This may make smart plugs less suitable for MUDs or public charging systems with high levels of EV ownership and shared charging resources.

Case Study 3: Chapel Hill Condominium Association

Chapel Hill is a town-house-type condominium community with 425 homes, built between 1969 and 1980, on approximately 80 acres in northeast Ann Arbor. Chapel Hill residents park in open bays with no carports. Chapel Hill is in the process of installing a two-vehicle Charge Point electric vehicle charging station adjacent to the maintenance building. Since the building has access to 220-volt electrical lines, the installation cost is lower than it would be otherwise.

Photo via https://chapelhilla2.com/about/

Electrical Constraints

Overview of the Problem

Depending on the desired system, electrical constraints may arise. This is especially dependent on electric grid capacity, number of chargers desired, and configuration of the electrical system. Overcoming these issues can be costly and require invasive interventions such as trenching and rewiring existing electrical infrastructure.

Considerations

- How many chargers are you hoping to install?
- Where are you hoping to install each charger? What is the proximity of this location to an electrical panel with sufficient capacity?
- Will the charger be connected to an individual electrical meter or a shared meter?
- Does your building/parking lot have the ability to install a wall-mounted charger, specifically near an electrical panel?
- How much does the convenience of a charger location compare to the overall installation costs and disruptions? In other words, is it more important to have a charger more conveniently located or to minimize trenching and/or electrical disruptions? This is not always an either-or, but often is and therefore is important to consider.

Charger Placement

- Choose a location close to an existing electrical panel to reduce/eliminate rewiring and trenching costs.
- Install in places where trenching is less of a concern and/or consider above-ground cabling.

Technological Solutions

- Dual port chargers can offer two chargers but the installation is similar to a single port unit.
- Load sharing systems can divide electricity between multiple chargers to eliminate need for grid expansion.

Electrical Constraints Continued

If you or your MUD are dealing with electrical capacity constraints for multiple EV chargers, load sharing/management systems can help to evenly divide the electrical power among all chargers. While this will create longer charging times compared to if all the electricity was going to a single charger, it will allow for the installation and use of more chargers without the cost of expanding your electrical grid. This solution is best for shared meter applications.

Many other solutions to electrical constraints can be very costly, but there are effective technologies. For example, solar powered chargers with battery storage can create a charging system independent from the MUD's main electrical system. This technology requires installation of a solar canopy, which can be relatively quick and easy—but potentially costly—construction. The installation of batteries will also increase the price. However, it does avoid the costs of trenching or electrical grid expansion and means the chargers will work even during electrical grid outages or disruptions. There are companies that sell these as all-in-one modular systems.

Another emerging technology are chargers that uses the same electrical input as a Level 2 charger but store electricity in an internal battery. The battery allows for faster charging, so the charger performs more similarly to a Level 3 charger. This allows users to charge more quickly, and lowers the installation costs greatly compared to a traditional Level 3 fast charger.

Case Study 4: Owl Creek Apartments

Overview of Parking System

All residents have assigned parking spots, and there is a communal Clubhouse with shared parking spaces for visitor or resident use.

Barrier to Installation

Owl Creek installed two Level 2 chargers during the construction of the complex, as the owners decided EV charging would be an important amenity for residents. When occupants began utilizing the chargers, the complex felt it was a good time to expand their EV charger availability and install two more chargers: one more Level 2 and a DC fast charger. The electrical capacity was not adequate to support these new systems, so Owl Creek pursued alternative methods to increase the electrical capacity.

Photo via https://www.owlcreekapartments.com/Gallery.aspx

Case Study 4, continued

Solution

Owl Creek chose to pursue a third Level 2 charger and a single DC fast charger, which is a fast charging technology that typically requires under 30 minutes (depending on car model and other factors) to charge over 80% of the vehicle battery. To support both installations, Owl Creek purchased an additional transformer that was connected to a separate electrical unit. This was both costly and time consuming, as DTE and the City had a lot of requirements and the shipment of the transformer itself took nearly six months. Usage fees of the chargers are used to recover installation, operations, and maintenance costs.

Owl Creek successfully completed the necessary electrical updates and installed the chargers in 2022, which are now up and running. The DC fast charger is open to the public while the three Level 2 chargers are currently available to residents only.

Ownership and Maintenance

Overview of the Problem

Similarly to solar panels installation, implementing a shared resource brings a slew of issues regarding cost sharing, maintenance, and placement of EV chargers.

Considerations

- Is this a community/shared resources, or an individual installation?
  - Will the charger be owned by an individual, or the association, complex, etc.?
- How many people will be using the charger?
- How will users split costs?
- Who pays for the installation?

Individual Meters

- Connecting chargers to specific units can eliminate ownership and cost disputes, as the individual who chose to install will be responsible for installation and upkeep costs.
- This may increase trenching costs if the electrical meter is not in an optimal position.

Smart Solutions

- Networked meters can divide electrical costs among users and allow owner to draw revenue.
- Smart plugs also collect information and divide costs by scanning a QR code to start charging. They are also easy to install compared to traditional chargers.

Ownership and Maintenance Continued

The ownership of EV chargers may vary greatly depending on the housing/building format. For example, with single family units, oftentimes the owners of that unit will make the purchase and assume responsibility for any additional maintenance costs. Assuming the single family unit has permission from the Board or governing body, this process and cost structure is likely straightforward.

However, in an apartment complex, multi-family units, or even in a community with single family homes, it may be more cost-effective and have a more widespread benefit to install shared chargers. These could potentially be at a central location, such as a community clubhouse, maintenance building, or similar type of building. In the case of a shared charger, there are a few ways to divide up-front costs.

While there are few examples of this, the Board or governing body could front the installation cost, then make the money back later via the networked charging system fees.

More often, individuals set on installing EV chargers for community use will develop a group willing to finance the up-front costs and implement the chargers through a grassroots approach.

Case Study 5: Great Oaks Co-Housing

Overview of Parking System

Community members have assigned individual parking spots in one of three buildings onsite. Each larger building holds between 9-12 parking spots, totaling 33 parking spaces, assigned to residents. All three buildings share one electrical meter.

Barrier to Installation

The electrical capabilities required for multiple residents to install Level 2 EV Chargers surpassed the capacity of an individual building's electricity provision. Each building could only support two EV chargers, limiting how many residents were able to install chargers. Expanding electrical capacity to account for increased demand would be costly, time-consuming, and disruptive to the infrastructure.

Photo via https://welcome.gocoho.org/campus/

Case Study 5, continued

Solution

Great Oaks investigated options for load management that would allow for more chargers to be installed than was previously thought. They decided on upgrading their electrical panel to a 200amp capacity and purchasing three load managers—one for each building of garages—for a total hardware cost of around $3300. From there, each garage was able to use this expanded capacity to install a 20amp panel

Another benefit of this option was that Great Oaks could divide costs among users. Each resident pays a flat rate for the right to install a charger, then is charged additionally for their share of electricity.

This cost division is possible because of the load managers. The load managers communicate with the chargers and signal them to drop electricity consumption if the electricity being used is approaching max capacity so that the total power drawn is lower than capacity limits. This allows each charger to take a portion of the electricity without overdrawing power from the system, ultimately allowing all residents to have the option of installing EV charging in their garages.

Conclusion and OSI Initiatives

This document has been developed through the City of Ann Arbor Office of Sustainability and Innovations (OSI) to expand the reach of solar and EV charging availability. In addition to supporting both solar and EV initiatives, this project also aligns with the City of Ann Arbor's carbon neutrality plan, A2ZERO.

In 2020, the City of Ann Arbor developed A2ZERO, a plan for achieving a just transition to community-wide carbon neutrality by 2030. The guiding principles of this framework are: Equitable, Sustainable, and Transformative. Learn more about at https://www.a2gov.org/departments/sustainability/Carbon-Neutrality

This project is one element of the expansive work OSI has been developing over the past few years. Many of this work revolves around connecting community members (like you!) and businesses with sustainability initiatives such as home electrification, circular economy, resilience, and much more. If you are interested in learning more or getting involved, check out the OSI website at https://www.a2gov.org/departments/sustainability

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6.	https://www.pwc.com/us/en/industries/industrial-products/library/electric-vehicle-charging-market-growth.html#:~:text=The%20number%20of%20charge%20points%20in%20the%20US%20is%20forecast,million%2C%20respectively)%20by%202030.
7.	https://theicct.org/sites/default/files/publications/ICCT_EV_Charging_Cost_20190813.pdf
8.	https://news.energysage.com/solar-panel-efficiency-cost-over-time/
9.	https://www.energy.gov/policy/articles/making-our-homes-more-efficient-clean-energy-tax-credits-consumers
10.	https://michigansaves.org
11.	https://www.dteenergy.com/us/en/residential/service-request/pev/pev-res-charge-frwd.html
12.	https://www.a2gov.org/solar
13.	https://www.pepsolar.com/blog/solar-access-rights-across-the-united-states/
14.	https://www.mashvisor.com/blog/addendum-vs-amendment-guide/
15.	https://www.energy.gov/eere/solar/community-solar-basics
16.	https://www.michigan.gov/egle/about/organization/materials-management/energy/renewable-energy/celica
17.	https://www.micommunitysolaralliance.com/who-we-are
18.	https://www.solarunitedneighbors.org/go-solar/solar-for-organizations/condos/
19.	https://kpamgmt.com/common-elements-vs-limited-common-elementswhats-the-difference/

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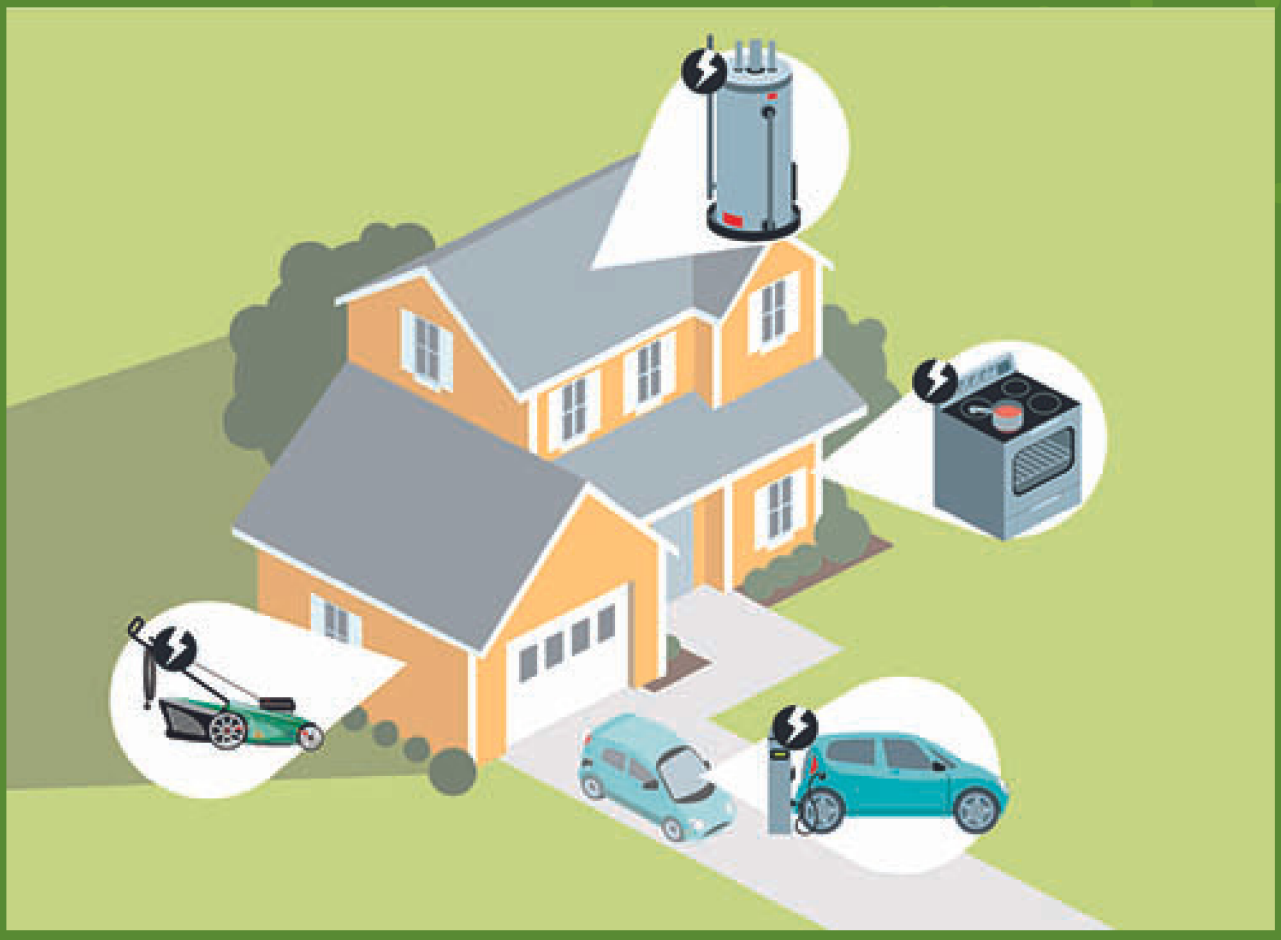
Appendix



General Resources

This is a list of online resources that each offer various services to aid solar and/or EV charger planning and installation.

Michigan Saves

Michigan Saves is a nonprofit green bank that certifies installers and offers a platform to find an installer that specializes in your needs. It both provides a useful resource to connect consumers with trusted installers and offers lending services for those who need funding for their improvement. You can access this resource at https://michigansaves.org/

Energy Sage

Energy Sage is an online marketplace backed by the US Department of Energy for consumers to engage with local installers and look for competitive solar rates. It also has a multitude of articles and resources that provide helpful and necessary information for consumers interested in solar, but who do not know where to start. This resource can be accessed at: https://www.energysage.com/

Alternative Fuels Data Center (AFDC)

AFDC is a comprehensive resource from the Department of Energy that includes a variety of information around electric vehicles such as overviews of technology options, laws and incentives, and benefits to EVs and hybrid vehicles. This resource can be accessed at: https://afdc.energy.gov/fuels/electricity.html

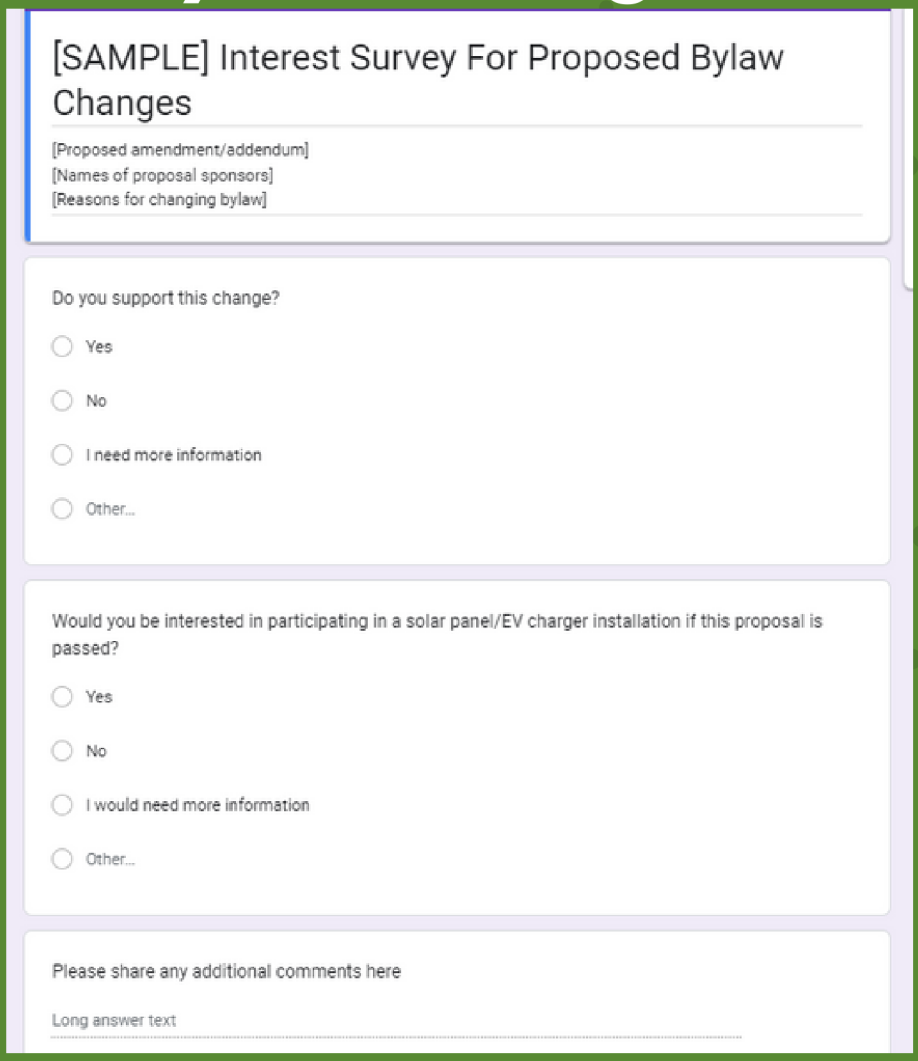
Solar United Neighbors Help Desk

Solar United Neighbors is a non-profit organization that provides resources for communities and individuals interested in going solar. In particular, this organization administers a free help desk to answer solar questions. This resource can be accessed at: https://www.solarunitedneighbors.org/go-solar/want-to-install-solar/go-solar-on-your-own/

Bylaw Changes

1. **Analyze restrictive covenants**
    - Gain a detailed understanding of the current restrictions to solidify the specific clauses, language, and information that must be changed to achieve your proposed goal.
2. **Gauge interest from stakeholders**
    - Survey other residents to discern whether they would be interested in backing your proposed changes.
3. **Work with an attorney (if needed) to draft bylaw changes that suit your needs**
4. **Present your proposal to HOA/MUD board**
    - This may entail submitting your proposal for review and/or attending a meeting to discuss in person.
5. **Voting**
    - In an HOA or Condo Association, all mortgagees or property owners are entitled to vote on the amendment. Proposal must garner 2/3 votes in its favor to pass.
6. **Decision**
    - When all votes have been recorded, the approval of the amendment will be announced, and the changed bylaw becomes effective. Congratulations!

A Sample Interest Survey For Proposed Bylaw Changes



[SAMPLE] Interest Survey For Proposed Bylaw Changes

[Proposed amendment/addendum]
[Names of proposal sponsors]
[Reasons for changing bylaw]

Do you support this change?

- Yes
- No
- I need more information
- Other...

Would you be interested in participating in a solar panel/EV charger installation if this proposal is passed?

- Yes
- No
- I would need more information
- Other...

Please share any additional comments here

Long answer text

Useful Resources for Changing Bylaws

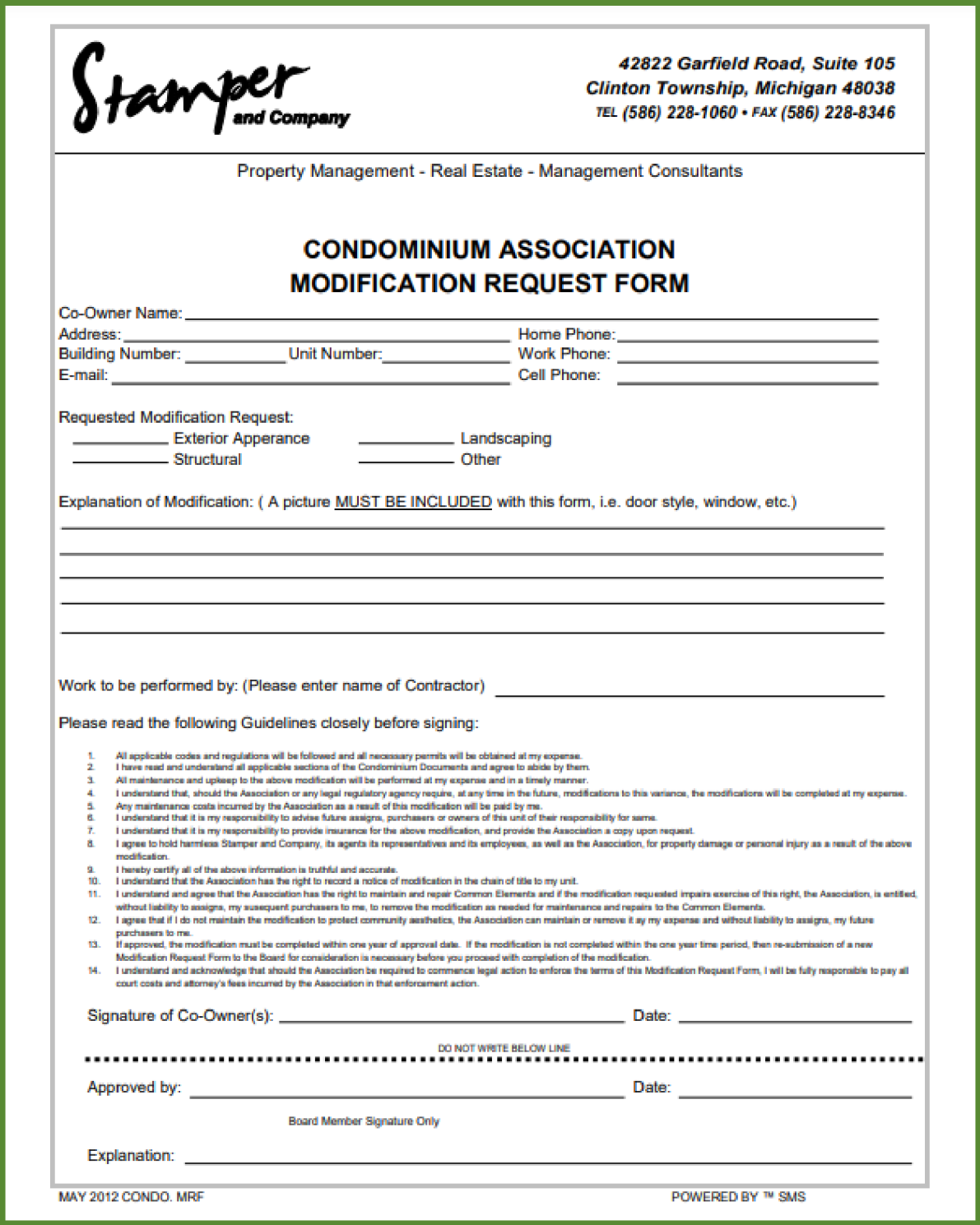
A basic, but comprehensive guide to knowing when and how to make bylaw or covenant changes to your HOA rules: https://www.hoamanagement.com/how-to-change-hoa-bylaws/

A resource of state and federal laws and regulations so homeowners and renters can learn about their rights as residents under an HOA or Condo Association: https://www.hopb.co/michigan

A very comprehensive guide to working within HOAs to install solar panels: https://www.solarunitedneighbors.org/learn-the-issues/homeowners-associations-and-solar-access/hoa-solar-action-guide/

An example from Massachusetts on Condominium Owners and Associations: https://www.mass.gov/doc/doer-solar-condo-guide/download

Sample Modification Request Form (DO NOT COPY)



Stamper and Company

42822 Garfield Road, Suite 105
Clinton Township, Michigan 48038
TEL (586) 228-1060 • FAX (586) 228-8346

Property Management - Real Estate - Management Consultants

CONDOMINIUM ASSOCIATION
MODIFICATION REQUEST FORM

Co-Owner Name: _____

Address: _____ Home Phone: _____

Building Number: _____ Unit Number: _____ Work Phone: _____

E-mail: _____ Cell Phone: _____

Requested Modification Request:

_____ Exterior Apperance _____ Landscaping

_____ Structural _____ Other

Explanation of Modification: (A picture MUST BE INCLUDED with this form, i.e. door style, window, etc.)

_____

_____

_____

_____

_____

Work to be performed by: (Please enter name of Contractor) _____

Please read the following Guidelines closely before signing:

1. All applicable codes and regulations will be followed and all necessary permits will be obtained at my expense.
2. I have read and understand all applicable sections of the Condominium Documents and agree to abide by them.
3. All maintenance and upkeep to the above modification will be performed at my expense and in a timely manner.
4. I understand that, should the Association or any legal regulatory agency require, at any time in the future, modifications to this variance, the modifications will be completed at my expense.
5. Any maintenance costs incurred by the Association as a result of this modification will be paid by me.
6. I understand that it is my responsibility to advise future assigns, purchasers or owners of this unit of their responsibility for same.
7. I understand that it is my responsibility to provide insurance for the above modification, and provide the Association a copy upon request.
8. I agree to hold harmless Stamper and Company, its agents its representatives and its employees, as well as the Association, for property damage or personal injury as a result of the above modification.
9. I hereby certify all of the above information is truthful and accurate.
10. I understand that the Association has the right to record a notice of modification in the chain of title to my unit.
11. I understand and agree that the Association has the right to maintain and repair Common Elements and if the modification requested impairs exercise of this right, the Association, is entitled, without liability to assigns, my susequent purchasers to me, to remove the modification as needed for maintenance and repairs to the Common Elements.
12. I agree that if I do not maintain the modification to protect community aesthetics, the Association can maintain or remove it ay my expense and without liability to assigns, my future purchasers to me.
13. If approved, the modification must be completed within one year of approval date. If the modification is not completed within the one year time period, then re-submission of a new Modification Request Form to the Board for consideration is necessary before you proceed with completion of the modification.
14. I understand and acknowledge that should the Association be required to commence legal action to enforce the terms of this Modification Request Form, I will be fully responsible to pay all court costs and attorney's fees incurred by the Association in that enforcement action.

Signature of Co-Owner(s): _____ Date: _____

DO NOT WRITE BELOW LINE

Approved by: _____ Date: _____

Board Member Signature Only

Explanation: _____

MAY 2012 CONDO. MRF

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Model HOA Covenant Language

Example from Bozeman, MT

Model Homeowner Association (HOA)/Property Owner (POA) Covenants | Suggested Language
Developed in November 2023

BOZEMAN MT

Purpose:

One of the identified priorities of the City of Bozeman is to establish model homeowners' association (HOAs*) covenants that promote policies focused on improving the lives of its citizens. These policies include water conservation, neighborhood and community connectivity, use of accessory dwelling units, availability of affordable childcare, installation of drought tolerant landscaping, composting, local food systems, recycling, and energy efficiency.

The outcome of this effort is draft language that can be accessed and included in new or existing covenants. The language is informed by public input, guided by community goals, and supported by the City Commission.

HOA covenants are formal agreements between private parties, and as such, the City does not enforce covenants between private parties, nor will the City mandate HOAs (Homeowners Associations) and POAs* (Property Owners Associations) adopt the model language. The City of Bozeman will not be involved in governance of HOA/POA covenants.

The draft language is intended to serve as policy language. Should an HOA/POA Board wish to adopt any of these model covenants, the HOA/POA Board is welcome to modify the language as they see fit, while still serving the purpose of the policy.

*Definitions for select terms included at the ending of the document.

Water Conservation Model Covenants

1. Turfgrass: The installation of high water use turfgrass is not required and should be limited to areas used for active and passive recreation, sometimes referred to as functional turf grass*. The installation of high water use turfgrass is discouraged in all boulevard strips.

2. Rain Gardens: Rain gardens*are permitted and encouraged within the landscape.

3. Drought Tolerant Plants: The installation of drought tolerant plants, including perennials, shrubs, and drought tolerant seed mixes, are permitted in all areas of the yard including the front yard, back yard, and boulevard strip. Drought tolerant plants refer to plants that thrive in Bozeman's semi-arid environment and are listed as having a plant factor of 0.3 or less on the City of Bozeman Plant List.

4. Landscape Maintenance: Landscape maintenance requirements and aesthetic standards that require the use of supplemental irrigation to be met do not apply during a City of Bozeman drought declaration. Residents are encouraged to adhere to City of Bozeman outdoor watering restrictions, especially those associated with a drought declaration.