



Building Reach Code Proposal for Existing Construction Policy Snapshot

May 6, 2024

Reach Code Proposal

Every three years the Building codes are updated at the State level and local jurisdictions are allowed and encouraged to adopt more stringent “reach codes” to help conserve resources and address climate goals. Council adopted a Green Building reach code in November 2022 for new construction which went into effect January 2023. Included in the reach code were prohibitions on gas piping for most new construction, a prohibition on extending gas lines or meters for existing single family homes, and an increase in electric vehicle charging infrastructure for multifamily buildings to reduce barriers to adoption of electric vehicles. A recent court decision against the City of Berkeley has rendered the gas prohibitions in any reach code null and void. The electric vehicle requirements have not been affected though and remain in place.

A second part of the reach code process was to identify technical assistance and streamlining opportunities to remove barriers to electrification and more robust energy efficiency in construction. Staff worked with two local residents who recently electrified their homes to develop an 8 Steps Guide to Electrification that has been well-received and promoted by the Marin Builders Association among others. In addition, staff has been working with partners around the County to develop an electrification roadmap for longer term transition to electric appliances since there is a lot of interest by residents to electrify. This roadmap, being developed by the County for use countywide should be finalized sometime this fall.

Climate Change Action Plan (CCAP) Measures addressed by this proposal

- 1. Green Building Reach Code (EE-C4)**
- 2. Building and Appliance Electrification (RE-C3)**
- 3. Energy Efficiency Programs (EE-C1)**

Green Building Reach Codes have been estimated to contribute between 2.9 – 10.7% of the City’s total 2030 greenhouse gas (GHG) reduction goal. In addition, reduction in energy use saves on energy bills and reduction of natural gas use in homes contributes to healthier living environments for tenants.

The Issue

Existing buildings make up a large portion of the building stock and GHG emissions and will need to be retrofitted to significantly improve their energy efficiency or to electrify appliances and install on-site renewable energy such as solar panels to meet City emission reduction goals. Single family homes make up the majority of San Rafael’s existing housing stock and will be key in reducing emissions. Targeting emissions in existing buildings is complex, as there is no one-size-fits-all policy option. The

Flexible Compliance Path provides a way to target these emissions in a more equitable and cost-effective way for homeowners.

The Flex Path Proposal

Single-family remodel projects over 500 square feet would be required to comply with the Flexible Compliance Path, or “Flex Path,” which seeks to increase energy efficiency and encourage electrification in homes, while homeowners are already making significant changes to their homes, and without mandating specific requirements.

The Flex Path serves as a menu of energy saving measure options that homeowners can choose from that the State of California has verified for cost-effectiveness. Each measure has an associated point value based on site energy savings. The higher the energy savings from implementation, the higher the score for the measure. The first section of the menu is centered around envelope related efficiency measures such as insulation, windows, and duct sealing, the next section is heating, venting and air conditioning (HVAC) and water heating electrification measures, and the third section consists of solar measures.

Jurisdictions set a “target score” that projects are required to meet, using the points from implementing measures on the menu. The City has set a target score for each vintage of home that does not force electrification and would be achievable through multiple combinations of other measures such as envelope improvements and solar. Each home can choose which measures work best for their home.

Who will it apply to?

Single family remodel projects over 500 square feet, built before 2010.

How will it work?

When homeowners apply for permits, the Flex Path will be a part of their permit paperwork. The form will include the Flex Path Table showing measures, target scores, and points, as well as a detailed descriptions of each measure on a separate sheet.

Homeowners will fill in the Flex Path Table for their project. They will note the vintage of their home, which indicates which target score they need to achieve. Then, they will decide which measures they want to implement into their project to meet that target score. They will be able to refer to detailed descriptions of each measure and compare it to the home’s existing conditions. If any measures already exist in the home, the homeowner will provide documentation of these measures to the City to show compliance with those requirements as long as they meet the efficiency standards in each measure category. For example, if a homeowner installed solar several years ago and it meets the standards in that measure, they would receive the points toward their target score.

If the homeowner looks at the list of measures and there are none already existing in the home, or if the total of any existing measures do not add up to meet the target score, the homeowner would then decide which measures to implement to reach the target score for their vintage.

After implementing their choice of efficiency measures, the homeowner provides documentation of how they've met the target score and the completed Flex Path form to the City show compliance. Once they've shown compliance or exemption from the Flex Path requirement, homeowners and their contractors would continue with the rest of the building permit process.

What do we hope to expect?

It is estimated that 40-60 projects per year will be subject to this requirement. The Flex Path gives project applicants the option to choose energy efficient measures that make the most sense for their home. Though target scores were selected to be low enough not to require any electrification measures, most electrification measures have higher point totals and would allow applicants to comply more quickly than choosing some other measures. Staff will monitor progress and actual projects to gather data on what happens. After one or two years the City could decide to increase target scores to encourage more efficiency measures or change the thresholds for compliance to smaller projects.

How much will it cost and how will it be funded?

There will be no cost to the City, however estimated upfront costs for homeowners may range between \$500-\$4000 depending on which measures a project chooses to implement. Most homeowners will see energy bill savings after implementation. Some homeowners may choose more expensive measures while others choose lower cost options, and there will be variety in energy bill impacts as well. The design of the Flex Path is to give homeowners more choices to do what is best for them.

Challenges and Opportunities

Rapid decarbonization will not always be easy to do in all cases. One of the main questions posed at the outset of this project was how to best meet our GHG reduction goals while also meeting our housing production and economic development goals, especially as it relates to cost. Exemptions and exceptions have been built into the proposal to accommodate those occasional cases where it would be infeasible or prohibitively costly to meet the code. In addition, credits are given to homes that have already done measures in the Flex Path.

Another question posed had to do with resiliency: How do electric appliances fare during a power outage, and can the electrical grid handle the increase in demand? Currently many gas appliances require electricity to operate, meaning in many cases space heating and hot water impacts will be felt by those in mixed-fuel homes as well. Local power distribution has been hardened and the vast majority of San Rafael is not at threat for a PG&E Public Safety Power Shutoff event. Common power outages are lasting shorter amounts of time than just a few short years ago. California is investing billions of dollars in grid reliability and backup power to reduce these impacts even further. Utilities believe the grid will not be compromised with the investments the State and utilities are making to ensure reliability.

Economy and Social Equity

For single family homes, duplexes, town homes and ADUs most energy measures are relatively inexpensive and show on-bill cost savings over time. Electrification of appliances has less on-bill savings but are not required measures. Multifamily housing and commercial projects are not included in the proposal. There are numerous incentives to help offset initial costs of installation for many measures through the Inflation Reduction Act, utility programs, the Bay Area Regional Energy Network, and State government.

With projected increases in extreme heat events, building electrification can provide residents with highly efficient air conditioning at about ¼ the energy use of typical air conditioners. This is because heat pump space heaters can reverse the flow of air and provide cool air as well as heat, offering tenants air conditioning options that were previously out of reach.

Co-Benefits & Potential Unintended Consequences

Two potential unintended consequences of adopting a reach code are additional costs and confusion for contractors due to hard-to-understand code language and burdensome Building Division implementation. However, the City of San Rafael's Building Division demonstrates collaboration and simplification and was consistently referenced as the easiest to work with in Marin during engagements with builders and the Marin Builders Association. Other potential unintended consequences may include the challenges of installing and using new technologies, added time and associated costs for permitting transformers for larger projects, and the ability to find contractors that can do the work. The City will continue to work with our regional partners to compile and promote all the technical assistance and incentives available to owners and contractors for ease of implementation in the coming year. Electrify Marin and Bay Area Regional Energy Network have been training contractors and providing incentives to build the capacity necessary to transition to an electric future and have seen a thousand-fold increase in qualified contractors since 2019.

Co-benefits include resident health and workforce development. Over 40 studies have documented the negative health effects of having natural gas (methane) in the home, including asthma, increased deaths and illness. Local workforce programs include MCE's Workforce, Education and Training program in conjunction with Strategic Energy Innovations focused on building electrification and energy efficiency. More workforce programs are being funded and developed across the region and the City is actively exploring opportunities to enhance them for local residents through our Equitable Low Carbon Economy project and work with the California/Bay Area Jobs First initiative.

Engagement

This proposal and analysis were guided by multiple meetings with our ad-hoc subcommittee comprised of Councilmembers Bushey and Llorens Gulati. In addition, staff sought input from the Mayor and other stakeholders throughout the year including local architects and builders on our Planning Commission and Design Review Board. City staff participated in the countywide building decarbonization steering committee, which convened dozens of engagements with a wide array of stakeholders over the last two and half years. These engagements included builders, developers,

appliance installers, other jurisdictions’ planning and building staff, nonprofit partners, and affordable housing entities. Engagements included focus groups, presentations to community groups, public meetings, individual meetings with key stakeholders, and a public survey. This proposal is based on the State and County’s Model Reach Codes and incorporates feedback received during these public engagements.

Sources & References

Climate Change Action Plan Measures

- [San Rafael Climate Action Plan Energy Efficiency Measures](#)
- [San Rafael Climate Action Plan Renewable Energy Measures](#)
- [Marin Climate GHG Inventories](#)
- [City of San Rafael 8 Steps Guide to Electrification](#)
- [UCLA Report Residential Gas Appliances](#)
- [Health Impacts of Natural Gas Stanford Study](#)
- [Health Impacts of Natural Gas Meta Analysis](#)

Reach Code Proposal

- [Statewide Reach Codes Website](#)
- [Single Family Cost Effectiveness Study Updated for 2024](#)
- [Cost Effectiveness Explorer for San Rafael Measures](#)
- [FAQ’s for Common FlexPath Questions](#)
- [Marin County Model Reach Code Development](#)
- [California Energy Commission Building Decarb and EV Resources](#)

Challenges and Opportunities

- [Assessment of Impacts of Electrifying Residential Buildings in California](#)
- [BUILD Program for Technical Assistance and Incentives Multifamily](#)
- [CPUC Utility Costs and Affordability Evaluation](#)
- [Building Decarbonization Practice Guide](#)
- [PG&E Public Safety Power Shutoff Map](#)
- [MCE Electric Load Planning](#)

Economy and Social Equity

- [Low-Rise Residential Cost-Effectiveness Study](#)
- [Electrify Marin Rebate Program](#)
- [Inflation Reduction Act Fact Sheet](#)
- [Inflation Reduction Act Incentives Calculator](#)
- [California Eliminates Natural Gas Subsidies](#)



Co-benefits & Potential Unintended Consequences

- [Bay Area Regional Energy Network Resources for Public, Government, and Contractors](#)
- [San Rafael Equitable Low Carbon Economy Project](#)
- [Heat Pumps and Heat Waves, Rocky Mountain Institute*](#)
- [California/Bay Area Jobs First initiative](#)
- [MCE Workforce Program](#)

Engagement

- [Model Reach Code Development Engagements](#)
- [Letter of Support from PG&E for Marin County Model Reach Code](#)