

Home Harding Program

A Proposal by FIRESafe Marin

In collaboration with UC Davis D-Lab; Holly Murphy and Molly Nagle

June 2021

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Program Summary

The increased risk of wildfires in California has created urgency to improve homes' resistance to ignition. These improvements, known as home hardening measures, can be simple retrofits for homes and buildings that can decrease their ignition potential. There is a real and growing need for a skilled workforce to harden homes in fire prone California. Additionally, the cost of living in this state is increasing at the fastest rate in the nation. The Home Hardening Program meets community demand for home hardening while training a workforce with skills for upward economic mobility. The program aims to train a workforce new to construction work in home hardening methods. These skills will build community resiliency by fortifying community structures, adding another line of defense to wildfires.

The Home Hardening Program was initiated by FIRESafe MARIN, a non-profit dedicated to reducing fire hazards, promoting fire safety awareness, and helping Marin County residents prepare for wildfires. Collaborators of the program are from FIRESafe Sonoma, North Bay Workforce Alliance, Fire Farms, Conservation Corps North Bay, and UC Davis D-Lab. FIRESafe MARIN will play an advisory and community outreach role as the program grows. This proposal will provide the steps needed to implement a program that meets the demand for home hardening improvements and trains low income community members in technical skills to harden homes. This proposal includes: an itemized budget of equipment, training and wages; a template to identify and organize potential grant opportunities; a basic training program; and a list of resources in California to connect with low income employees.

Program Meets Multiple Community Demands

The Home Hardening Program is needed by homeowners because of increased risk of wildfire, and is needed by trainees because of the high cost of living and limited opportunities for low-income people to enter into skilled careers. The Home Hardening Program meets community demand for home hardening while training a workforce with skills for upward economic mobility. Demand for home hardening measures is growing as the fire season expands and since the implementation of AB-38 began. The bill requires California homeowners who are selling to provide a list of home hardening retrofits to new buyers. Typically, home hardening techniques are fairly simple, but require skilled construction knowledge. Home hardening and basic construction skills will build community resiliency by fortifying community structures against the threat of wildfires and building a workforce that can afford to live in and serve the community's needs.

Benefits of Working with Underserved Community Members

The Home Hardening Program aims to hire underserved and economically disadvantaged community members because of the rising cost of living and lack of well-paying and career advancement opportunities in California. More low-income students are continuing their education after high school to gain financial stability and keep up with rising costs of living. Low-income students are attracted to trade

programs because of their short length, clear pathway to employment, and promise of financial stability (Holland et. al, 2016, p. 267, 272). However, low-income student graduation rates are lower than their affluent counterparts, and many students find themselves in debt after graduation or dropping out of their programs (Holland et. al, 2016, p. 262). Prospective trade school students would benefit from programs that are free or low cost and train them in demand driven jobs to help them reach financial stability.

The State of California recognizes a need for trade programs, demand driven jobs, and employment opportunities for underserved communities (CDWB, 2020). California is prioritizing funding for programs that target populations that have historically not been given equal employment opportunities, such as black, immigrant, formerly incarcerated, and homeless populations (CWBD, 2020). The Home Hardening Program meets the call for both demand driven jobs and opportunities for underserved communities.

Creating training and employment opportunities for underserved populations allows for upward mobility, financial autonomy, and helps individuals close the wealth gap experienced by marginalized communities. The Home Hardening Program will increase the supply of workers willing to do demanded home hardening work while prioritizing communities that lack well-paying career opportunities.

Recruitment Strategy

When developing the program, FIREsafe MARIN reached out to North Bay Workforce Alliance and Conservation Corps North Bay for connections and resources to recruit economically disadvantaged community members. Below is a list of resources these groups recommended to begin recruitment from in the greater Marin County area. Collaborators will aid the program in disbursing information to these organizations. Relevancy of these organizations may vary by region.

Collaborators list of Employee Recruitment Sites and Resources in the Marin County Region

- Colleges
- High School counselors/administrators
- CareerPoint Marin/CareerPoint North Bay
- Workforce Alliance Newsletters/jobseeker update emails
- CalJOBS list of people who have filed for unemployment
- People who have signed up for our job fairs
- Canal Alliance (in Marin County)
- YWCA for older adults
- Community Action Marin
- Tamalpais Adult School
- Hill Education Center (Novato Adult School)
- Homeward Bound
- Department of Rehabilitation
- California Human Development
- Novato Community Television

- Raising Stars
- Youth for Change
- Multicultural Center of Marin

Organization of Program

The Home Hardening Program aims to **provide basic wildfire related home hardening services to residents utilizing employees recruited from economically disadvantaged communities.** The Home Hardening Program will train employees in simple home hardening techniques and life skills , and will include opportunities for more training in advanced construction methods -- all while offering a living wage to the participants. Ideally the program will be housed within an existing non-profit organization that has insurance, administration and other infrastructure in place to accommodate the Home Hardening Program. The program hopes to be accessible to all community members and will have all training materials translated into Spanish. To advance employees' careers, the pilot program plans to connect with local firms and has designed the training program to mirror some of these firms' desired skills for new employees. Collaborators on the project will also reach out to Homeowner Associations, and realtors to advertise the program's available services.

Summary of Full Training Program

The Home Hardening program consists of a 10-element course curriculum, including the following topics:

1. Life Skills
2. Fire Science 101
3. Tool safety, use and design
4. Common types of roofing
5. Gutter design and function
6. Under-eave construction
7. Vents – purpose and where to expect to see them
8. Foundations: slab on grade, perimeter stem wall
9. Deck design and construction
10. Fence design and construction

Life Skills Training

In the interest of providing job and financial stability beyond the scope of the Home Hardening Program, the training will include a Career Readiness element. The Home Hardening Program will either adopt a Career Readiness element provided by the non-profit organization housing the program, or use a Career Readiness element plan of its own. The life skills or Career Readiness training will be an ongoing program that trainees and employees can participate in while employed by the Home Hardening Program. They will be able to repeat workshops and have access to a Career Readiness advisor until they leave the program. The following plan follows a similar outline to the Conservation Corps North Bay Career Readiness program and includes:

- a. Community meetings to discuss various career related topics where trainees participate in resume, interview and soft skill workshops

- b. Individualized case management to cater to the diverse and unique needs of Home Hardening Program participants. It is important that program trainees and employees have a connection with a Career Readiness advisor to help with case-specific needs.

Safety Training

Safety training must be integrated into all aspects of the program. Topics should include, but not be limited to:

1. Proper use of tools
2. Proper use of ladders
3. Ropes and harnesses when working on roofs
4. How to walk on a roof without creating damage
5. How to work safely in attic and crawl spaces

Technical Training

Below are the skills and services that could be offered by the Home Hardening Program. Employees will learn to complete these skills on site under the supervision of a construction manager.

1. How to identify and remove flammable items from Zone 0
2. How to identify and remove flammable plants from Zone 0
3. How to prepare soil and place noncombustible mulch in Zone 0
 - a. Installation of a weed cloth or other “barrier”
 - b. Mulch and hardscape options
4. Attic Vents (function and ventilation requirements)
 - a. Inlet air
 - i. Open-eave
 - ii. Soffited-eave
 - b. Outlet (exhaust) air
 - i. Gable end
 - ii. Through-roof / ridge
 - iii. Through-roof / off ridge
 - iv. Through-roof / off-ridge / turbine
5. Crawl Space (Foundation) Vents (function)
 - a. Need to maintain cross-ventilation
6. Mitigation Strategies
 - a. Applying finer mesh screen to existing openings
 - i. Interior versus exterior access
 - ii. Utilizing existing frame assembly versus fabricating new
7. Installing California Office of the State Fire Marshal approved “flame and ember resistant” vents
8. How to identify and remove flammable material from under decks
9. How to install deck enclosure screening
 - a. larger openings may require installation of more framing
 - b. screens may need special tools to tighten

10. How to clean roofs and gutters of leaves and other flammable debris
11. How to install approved gutter screens / guards
12. How to install gutter flashing as barrier between gutter and roof
13. How to do basic replacement of wood / combustible gates/fence sections with noncombustible options

Program Operation Post-Training

FIRESafe MARIN and their collaborators recommend that the program be set up with 4 crew members and one supervisor working together on each job site. Ideally, the program will have at least two crews in operation at one time. To advertise services and gain a steady clientele, FIRESafe MARIN will outreach to realtors, Homeowner Associations and homeowners who have received notification from fire department inspectors specifically to harden their homes in the region. A program that has two crews in operation will provide home hardening services to two to three homeowners per day. Over a quarter (12-week period), the program would service **120-180 homes**.

The training program developed by FIRESafe MARIN and collaborators recommends crews be ready on the first day after training to install gutters, vents, screen in decks, install fence attachments and complete basic landscaping to protect “zone zero” around a home. Following the training program outlined in this proposal, each crew member would learn **13 home hardening skills** during **80 hours of training**. There is potential to learn more advanced home hardening skills as the employee advances in the program, which will depend on regional resource availability. As noted above, the program will include life skill workshops provided at a regular interval, individual meetings every two weeks, and the opportunity for program participants to be in contact with future employers in the industry.

Each crew will need the equipment itemized in *Appendix i: Detailed Equipment, Training and Salary Budget*. to complete these tasks. We recommend a truck be available for each crew to use to transport themselves and the equipment to job sites. If the program is able to maintain a steady flow of work, and produce high quality work, the program can charge market rate prices for their services and be financially independent after the initial training costs. Participating in the program will open up career advancement opportunities for employees in construction related work or with other home hardening firms.

Career Pathways

The Career Readiness element of the program prepares trainees and employees for stable employment beyond the Home Hardening Program. As participants begin developing career readiness skills, they may wish to continue providing home hardening work for another company, work within the construction field, or go to trade school for further education. The Home Hardening Program is interested in facilitating the connection between program participants and other job opportunities by:

1. Compiling a list of organizations and businesses possibly interested in hiring Home Hardening Program employees

2. Building a relationship with some of these organizations to ensure continuing employment opportunities for employees
3. Prioritize career assistance by:
 - a. Assisting with job placement for employees in the same field of work (home hardening)
 - b. Orienting employees toward other construction related work
 - c. Facilitating employee transition to trade school for continued education

Budget Overview

We anticipate the salary and equipment budget will vary by region and resource availability. Our recommendations for equipment and living-wage salary is tailored for a crew of four plus a supervisor with prior construction experience. See *Appendix i: Detailed Equipment, Training and Salary Budget* for a more detailed breakdown of equipment, training and wage expenses.

The following estimated costs are projected for the two-week training program outlined in this proposal. Tools will cost approximately **\$3,750** for one crew and will be used by the crew after training as well. Construction of a wall to practice vent and gutter installations is a one-time cost of **\$10,000** for the entire training program and is reusable. Hiring two instructors over a two week period will cost approximately **\$15,600**.

An important goal of the program is to provide economically disadvantaged community members with a living wage and career advancing opportunities. We recommend paying the crew \$15/hour over the two week training period. As mentioned above, we recommend training two crews (8 members) at once for efficient use of training costs of approximately **\$12,480** for the two-week training period. We do recommend that after training their hourly rate be raised to \$20 - 30/hour based on a survey from entry level industry wages. Additionally, supervisors will have prior knowledge of home hardening techniques and construction methods. Based on another industry wage survey, we recommend their hourly rate be \$25-35/hour. An additional cost associated with the program is transportation for the crew and equipment to jobs sites. While there are options for funding work trucks for this program, retail price for a truck outfitted with appropriate storage options for a single crew will cost **\$50,000**.

Funding Opportunities

With the program's goal of providing training and career opportunities to low-income community members and addressing community vulnerabilities to wildfire risk; there are many potential state and local funding opportunities to offset initial training costs. The main statewide grant opportunities to apply for are CalFire, California Fire Safe Council, California Fire Foundation, and California Workforce Development grants. Attached to this proposal is a spreadsheet of regional funding opportunities to the Marin County Area that include state and local resources as well as contact and grant specific information. Note that grant availability will vary regionally.

Google Sheets Link to Working Document of Grant Opportunities for Home Hardening Program in California (anyone with link can edit, please follow directions at top of google sheet before editing)

<https://drive.google.com/file/d/1z87Ww7p-mfAov2ijKJ9uSxmwSpBkTqLs/view?usp=sharing>

References

- Holland, M. and DeLuca, S. (2016). "Why Wait Years to Become Something?" Low-income African American Youth and the Costly Career Search in For-profit Trade Schools. *Sociology of Education*, 89(4), 261-278. <https://doi.org/10.1177/0038040716666607>
- California Workforce Development Board. (2020). Unified Strategic Development Plan: Strategic Planning Elements. https://cwdb.ca.gov/wp-content/uploads/sites/43/2020/09/Strategic-Planning-Elements.Final_A_CCESSIBLE.pdf
- Fire Safety: low cost retrofits: regional capacity: wildfire mitigation bill. California Assembly Bill No. 38.(2019-2020). https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB38#:~:text=This%20bill%2C%20on%20or%20after,fire%20hardening%20improvements%20on%20the
- Career Pathways. California Conservation Corps North Bay website. Retrieved April 2021. <https://www.ccnorthbay.org/career-pathways/>
- Harden Your Home. FIREsafe MARIN website. Retrieved May 2021. <https://www.firesafemarin.org/home-hardening>

Appendices:

Appendix i: Detailed Equipment, Training, and Salary Budget

Equipment Budget for Crew of 4 and Supervisor					
Item	Quantity	Unit Price	Total		
Power Tools					
Battery operated leaf blower	2	200	400		
Screw gun	2	150	300		
Sawzall	1	140	140		
Circular saw	1	150	150		
Grinder	1	75	75		
Battery operated 12" chain saw	1	250	250		
Battery operated caulk gun	2	100	200		
Hand Tools					
Round Shovel	2	20	40		

Square shovel	2	20	40		
Hole digger	1	50	50		
Leaf rakes	2	20	40		
Stone/shrub rakes	2	35	70		
Pick	1	40	40		
Pry bar	1	40	40		
Crow bar	1	25	25		
Tin snip	2	20	40		
Hammer	2	25	50		
Multi bit Screwdriver	2	20	40		
Pliers	2	25	50		
Wire cutter	2	50	100		
Channel lock	1	25	25		
Pipe wrench	1	25	25		
Set hand wrenches	1	80	80		
Staplers	4	40	160		
Tape measures	2	25	50		
Tool belt	4	30	120		
Miscellaneous					
24 ft. extension ladder	1	350	350		
8 ft. step ladder	1	150	150		
Dust masks	50	30	30		
Gloves	10	20	200		
Safety glasses / goggles	10	4	40		
Booties, if entering house	100	15	15		
Coveralls	4	60	240		
Knee pads	5	25	125		
TOTAL			3,750		

Vehicle for crew of 4 and Supervisor					
New crew cab pickup with racks and tool storage	1	50000	50,000		
Training Infrastructure for Reuse with Each Training Class					
Construct a simple wall & partial roof with vent openings, etc.	1	25,000	25,000		
2-week Training Class Labor Expense					
	Hourly Wage	Total Hours	Benefits x 30%	Number of People	Total
Student	15	80	1560	8	12,480
Instructor	75	80	7800	2	15,600
Wages for Crew of 4 and Supervisor in a Two-Week Pay Period					
	Hourly Wage	Total Hours	Benefits x 30%	Number of employees	Total
Crew Member	20	80	2,080	4	8,320
Supervisor	25	80	2,600	1	2,600
Full Crew				5	10,920
Insurance					
Note: Worker compensation is included in salary calculations. Additional insurance is needed for liability, vehicles, etc. The amount will depend on which organization hosts the program					

Appendix ii: Home Hardening Training Program

All new employees will be required to successfully complete a two- week training program. Employees should be paid full salary during training. Instructors should be licensed contractors with experience in providing home hardening services.

Course Curriculum

1. Life Skills
2. Fire Science 101
3. Tool safety, use and design
4. Common types of roofing
5. Gutter design and function
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Appendix iii: Funding Opportunities for The Home Hardening Program

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<https://drive.google.com/file/d/1z87Ww7p-mfAov2ijKJ9uSxmwSpBkTqLs/view?usp=sharing>