

Inclusive Design Cost and Feasibility Study

Implications and Recommendations for Housing in Marin County



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Table of Contents

1 Executive Summary

Overview	4
Takeaways	4
Recommendations for Marin County	5

2 Introduction

Origins and Purpose	15
Research Questions	15
Methodological Approach	16
Report Structure	26

3 Findings

Pedestrian Paths Width	28
Pet and Service Animal Relief Areas	32
Automatic Entry Doors	36
Usable Corridors	40
Adaptable Units	44
Visible Alerts	49
Roll-in Showers	54
Grab Bars	58
Outdoor Noise Control	62
Low-VOC Materials	65
Secondary Accessibility Features	69

4 Conclusion

Conclusion	77
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Appendix A: Review of Cost Studies To Date	82
Appendix B: Aggregated Cost Estimate	84
Appendix C: Applicable Codes and Standards Text	86

1

Executive Summary

- › Overview
- › Takeaways
- › Recommendations for Marin County

Overview

This study seeks to understand the cost of implementing ten key features of inclusive and accessible design in elevator-served multifamily buildings of at least 50 units in California's Bay Area. This study provides specific analysis for Marin County. Using stakeholder interviews and cost research, the study estimates and describes cost differentials that can arise when including such features, why those differentials arise, and how to navigate them.

Takeaways

- **Many of the accessibility features studied are low-cost, especially when implemented in a targeted, high-impact way.** Under ideal construction conditions, this study estimates building the ten accessibility features to a baseline, targeted level of implementation could add less than 1% to total per-unit development costs. This is a modest cost – though one that is still meaningful in the context of tight development budgets and rigid financial performance thresholds. Adding the features is also an investment that reduces the need for future retrofits while benefiting all current residents. Everyone's abilities and needs change over the course of their lives, and inclusive design principles offer flexibility and resilience to those various changes and circumstances.
- **The accessibility features can amount to higher costs when implemented more extensively.** Building to enhanced or more universal levels of accessible design adds resident benefits but also substantially raises the per-unit costs described above. In short, multiplying the prevalence of the accessibility features multiplies their cost impact. The study describes the various degrees to which the accessibility features can be implemented and the unique incremental cost increases that accompany those enhancements.
- **The accessibility features' incremental costs vary significantly by housing type and project context, with affordable housing facing relatively smaller impacts and market-rate housing facing relatively higher ones.** Due to overlapping legal and contractual requirements, affordable housing tends to be built to higher accessibility standards than market-rate housing. This means affordable housing development is generally expected to face lower marginal

costs when adding basic accessibility features, while the opposite holds true for market-rate development. In addition, affordable-housing rents are set based on bedroom count and income level and are not incentivized to shift based on marginal adjustments to square footage. Market-rate developments function differently, needing to prioritize unit efficiency and financial return. They are exposed to shrinkage of rental rolls, market values, and financeability if square footage must ever be reallocated from rentable space to common-area space (such as for wider, more accessible corridors). This exposure creates additional indirect financial impacts for market-rate development that are not as present in affordable housing development.

- **Adding accessibility features during construction conveys long-term cost savings and resident benefits.** This study found that roll-in shower retrofits are substantially more expensive than installation during initial construction, and features such as grab bars can reduce later accommodation requests and litigation risk. These all save on future costs, especially in an environment of rapid labor and material cost inflation. In addition, multiple architects noted that providing certain accessibility features in excess of code requirements was already considered a design best practice, recommended as a way to optimize resident experience and add design value.
- **Communities need both accessibility and affordability.** The tension between affordability and accessibility leads advocates and community members to get stuck arguing a side. The best question is: how can we have both? Between zoning, development standards, building code, tax and fee policy, and permitting processes, California and Marin County have many opportunities to decrease the overall cost of housing production and offset the costs (and even incentivize) new accessibility standards.

Recommendations for Marin County

- Focus any new accessibility standards first on features that offer lower costs and high value to residents, and optimize the proportion of units covered by new standards to offer meaningful choice for residents while avoiding incurring costs for nominal benefits.
- Consider providing financial or regulatory incentives to offset the cost of new standards.

- Offer developers a menu of inclusive design strategies and accessibility features to choose from, as this creates flexibility and incentivizes cost-benefit optimization.
- Share the **Inclusive Design Standards** with neighboring and partner jurisdictions to have as a helpful tool to inform their accessible design efforts.
- Find ways to reduce development costs and improve development feasibility, as doing so creates financial room for new community-serving accessibility standards. Local government's influence is limited but real, and can meaningfully support cost effectiveness while setting ambitious goals.



Table 1. Overview of Findings

This table summarizes the cost analysis findings for the ten accessibility features studied. The Feature Details column describes how each feature can be implemented, including the following information:

- Baseline regulations, which cover existing code requirements. Existing code requirements come from the 2010 Americans with Disabilities Act Standards for Accessible Design (ADA), Fair Housing Act Design Manual (FHA), and California Building Code (CBC) – among other regulations.
- A Targeted Implementation description, which covers initial, fundamental steps to support accessible and inclusive design that may match or exceed the baseline regulations.
- An Enhanced Implementation description, which covers additional important steps for inclusive and accessible design.

The table also includes a Cost Impact column. Features' cost impacts depend heavily on existing code requirements, project context, and development team decisions (such as how extensively to implement a feature). Cost impacts are presented in three categories:

- Low Impact corresponds with an estimated \$0 to \$250 cost per unit to implement the feature.
- Moderate Impact corresponds with an estimated \$250 to \$1000 cost per unit.
- High Impact corresponds with an estimated over \$1000 cost per unit.

Because some accessibility features appear in common areas, per-unit cost estimates are always calculated as the cost of the feature divided by the *total* unit count – not just the units where the feature is implemented. See the Findings section for full citations and cost analysis.

Feature	Feature Details	Existing Code Requirements	Cost Impact	Cost Drivers
Pedestrian Path Width <i>Wider exterior paths leading to or between buildings to allow easier use for people with mobility devices.</i>	Baseline regulations require one accessible route 4 ft wide. Targeted Implementation: All paths are 4 ft wide, not just accessible routes. Enhanced Implementation: Provide the above, plus wider (6 ft) paths for the primary accessible routes within or through the site.	ADA 206, 403.5 FHA Design Manual pg. 2.15 (ANSI 4.3) CBC 11B 206, 403.5	Low Impact Sidewalks are relatively inexpensive to widen and costs are spread across all units. Many paths already exceed code's width requirements to feel generous and promote congregation.	More concrete work Minor potential for displaced building area on highly constrained or complex sites.
Pet and Service Animal Relief Areas <i>On-site area where residents can take pets or service animals to go to the bathroom without leaving the property.</i>	There are no baseline requirements for this feature. Targeted Implementation: A pet relief area with a waste bag dispenser and covered receptacle.	No federal, state, or local accessibility standard applies.	Low Impact Relief areas can be relatively low-cost per unit due to being a shared amenity. Impact is lowest when relief areas do not displace rentable square feet (SF). If relief areas displace rentable SF, affordable housing can	Size of relief area Type of drainage system Type of turf Displacement of rentable space

Feature	Feature Details	Existing Code Requirements	Cost Impact	Cost Drivers
	Enhanced Implementation: Provide the above, plus an enclosure and water supply.		often reallocate SF to mitigate the downside, while market-rate housing may face larger impacts due to lost rent.	
Automatic Entry Doors <i>Doors that open automatically at all exterior entrances.</i>	Baseline regulations cap door opening force but do not require automatic entry doors. Targeted Implementation: Automatic doors with a push bar activator or motion sensor at primary exterior entrances. Enhanced Implementation: Provide the above, but at every exterior entrance.	ADA 404.2 FHA Design Manual pg. 3.3 (ANSI 4.13) CBC 11B 404.2	Impact Varies Low impact when few doors are involved or buildings already include automation in the design (e.g., senior housing, affordable housing with mobility-features units). Moderate impact for buildings with no planned automatic doors, most often market-rate developments.	Number of automatic doors Electrical work, access control Type of activators
Usable Corridors <i>Wider common corridors within</i>	Baseline regulations require a minimum 36-44 inch wide corridor,	FHA Design Manual pg. 4.4	Impact Varies Widely	Additional hallway square footage OR same square

Feature	Feature Details	Existing Code Requirements	Cost Impact	Cost Drivers
<i>the building to allow two mobility devices to pass each other or go down the hall together.</i>	but 60 inch corridors are industry standard. Targeted Implementation: Corridors at least 72 inches wide Enhanced Implementation: Provide the above, plus half or more of corridors must be 78 inches or wider.	CBC 1119A	Low impact for affordable housing projects that can reallocate SF from units to halls without affecting bedroom counts and rents. High impact for projects that must add new building SF or lose rent due to smaller units, with market-rate developments most susceptible.	footage but reallocation of rentable space to common space
Adaptable Units <i>Adaptable Units that aren't yet fully accessible but include features that enable future conversion to accessible units.</i>	Baseline regulations require adaptable features, such as continuous accessible circulation, grab bar backing, and removable cabinets. Targeted Implementation: Exceed baseline code regulations by offering larger 60-inch turning	FHA Design Manual pgs. 4.3–4.4, 7.3, 7.9 CBC 1119A, 1133-1134A ADA 809.2 standards	Impact Varies Low impacts are likely for affordable housing, as larger turn radiuses would often already be required and wider wall backing is a minimal cost. Moderate impacts are likely for some market-rate projects due to needing larger spaces for turning	Grab bar backing Larger turn radiuses necessitate addition or reallocation of square footage

Feature	Feature Details	Existing Code Requirements	Cost Impact	Cost Drivers
	radiuses and wider grab bar backing (2x10 vs. 2x6 lumber).		(e.g., larger bathrooms) and/or more SF per unit.	
Visible Alerts <i>Visible alerts for doorbells, smoke, fire, and carbon monoxide warnings.</i>	Baseline regulations require audible alerts and the capability to support future visible alarm notification. Targeted Implementation: Installed visible alerts (strobes on smoke/CO alarms, doorbells) in 25% of units. Enhanced Implementations: Installed visible alerts in 50% to 100% of units.	CBC 1132A.10, 907.2, 907.5.2.3	Impact Varies Moderate impact when implementation is targeted at 25% of units. High impact when visible alerts are installed in 50-100% of units. Affordable housing with communication features units will face lower impacts, as some units must already have visible alerts.	Number of additional devices for visible alerts (e.g., strobes, visual doorbells) Connection to building alarm system
Roll-in Showers <i>Showers that can be used by people with mobility devices,</i>	Baseline regulations do not require roll-in showers. Targeted Implementation: Roll-in	FHA Design Manual pg. 7.58 CBC 1134A.6	Impact Varies Moderate impact when implementation is targeted at 10-25% of units.	Number of roll-in showers

Feature	Feature Details	Existing Code Requirements	Cost Impact	Cost Drivers
<i>such as a wheelchair.</i>	showers in 10% of units, distributed across unit types and floors. Enhanced Implementations: Provide the above, but in 25% to 50% of units.		High impact when implemented across greater proportions of units, especially if implementing in more units raises the proportion of roll-in showers installed on wood-framed floors that need waterproofing.	Shower model and installation complexity Waterproofing and drains
Grab Bars <i>Grab bars next to toilets, tubs, and showers in bathrooms to prevent slips and falls.</i>	Baseline regulations require wall reinforcement only, not installed grab bars. Targeted Implementation: Wider grab bar backing (2x10) in all units, plus installed grab bars in 10% of units. Enhanced Implementations: Provide the above, plus additional installed	FHA Design Manual pgs. 6.3–6.13 CBC 1134A.5–1134A.7	Impact Varies Widely Low impact when grab bar installation is targeted at 10% of units, with the rest receiving backing for future installation. Moderate impact when installing grab bars more extensively, but not universally. High impact when installing grab bars universally (i.e., in 100% of unit bathrooms). or near universally.	Backing Number of grab bars

Feature	Feature Details	Existing Code Requirements	Cost Impact	Cost Drivers
	grab bars up to 100% of all units' bathrooms.		Affordable housing with mobility features units will face lower impacts as some grab bar installation is already required.	
Outdoor Noise Control <i>Windows that reduce external noise.</i>	Baseline regulations cap interior noise at 45 dB from exterior sources. Targeted Implementation: Provide windows that exceed the Sound Transmission Class (STC) needed to meet that threshold, providing greater sound dampening.	No ADA or FHA accessibility standard applies. CBC 1206.4 (Interior Environment code)	Impact Varies Moderate impact on quiet sites, where upgrading from base windows with STCs in the 20s to windows with STCs in the 30s is relatively more affordable (+10% in costs). High impact on loud sites, where upgrading to STCs in the upper 30s or even 40s could more than double the cost per window.	Ambient noise level of the site Baseline glass package required to meet the 45 dB threshold Window type (e.g., single-hung, casement)
Low-VOC Materials <i>Building materials with reduced emissions of</i>	CALGreen Code requires low-VOC materials as a baseline.	No ADA or FHA accessibility standard applies.	Impact Varies Low impact when using low-VOC materials for a Targeted Implementation,	Amount of material to upgrade and material type

Feature	Feature Details	Existing Code Requirements	Cost Impact	Cost Drivers
<i>volatile organic compounds, which can affect residents' health.</i>	Targeted Implementation: Use low-VOC materials in line with CALGreen. Enhanced Implementations: No-VOC materials, low-VOC furnishings, and designating chemical and odor-free zones.	CALGreen §4.504, which references CA Air Resources Board & Public Health Standards	as CA already requires that for new construction. Unknown impacts for using no-VOC materials and designating chemical-free zones. Potential cost premiums are not possible to quantify without more extensive study.	(paint, flooring, adhesives, etc.) Material durability; long-term maintenance and replacement costs

2

Introduction

- › Origins and Purpose
- › Research Questions
- › Methodological Approach
- › Report Structure

Origins and Purpose

In 2021, The Kelsey, in partnership with Mikiten Architecture and the Inclusive Design Council, created the [Inclusive Design Standards](#) for multifamily residential design and operations. The standards support accessibility across multiple types of disabilities and do so in ways that also provide benefits for affordability, sustainability, racial equity, and safety. Development teams can use the Inclusive Design Standards to plan and design their projects.

In 2026, The Kelsey contracted Cascadia Partners to research the cost of implementing key features of inclusive and accessible design in multifamily buildings in the Bay Area in California. The features studied are included in the Inclusive Design Standards, but represent only a fraction of the full guidance and standards in that document. The goal of the research is to describe any cost differentials that may arise when implementing the features, why those differentials arise, and how to navigate them.

Research Questions

- What accessibility and universal design features are currently required in multi-unit residential developments in California and Marin County?
- What are the costs associated with building inclusive design features in multifamily housing?
- How do developers, architects, and builders manage the cost, design, and implementation tradeoffs associated with building inclusive design features to maximize overall benefits and financial feasibility?

Methodological Approach

The Kelsey identified ten primary accessibility features for Cascadia Partners to study. These ten features represent accessibility improvements that are important to people with disabilities but often raise questions about cost. The features provide targeted benefits to residents with a range of disabilities as well as benefits to residents without disabilities. The ten features are:

1. Pedestrian path widths
2. Pet and service animal relief areas
3. Automatic entry doors
4. Usable corridors
5. Adaptable units
6. Visible alerts
7. Roll-in showers
8. Grab Bars
9. Outdoor noise control
10. Low-VOC materials

Cascadia Partners conducted background research, stakeholder interviews, and cost research and analysis to evaluate the cost implications of including the ten features above in a multi-unit residential development.

Background Research and Assumption Set

Background research sought to understand the existing regulations that require accessibility features and when they apply. For this, the consultant team relied on a review of industry publications as well as federal, state, and local accessibility requirements themselves, including but not limited to the Americans with Disabilities Act (ADA), Fair Housing Act (FHA) requirements, the California Building Code (CBC), and the Marin County Code (MCC). Relevant standards and codes are included verbatim in Appendix C. Background research also included a review of industry publications, government reports, and academic literature to understand the costs associated with building required accessibility features. This research is summarized in Appendix A.

The background regulatory research quickly revealed that different federal, state, and local accessibility standards apply depending on the building's use, features, ownership, financing, and other context. Therefore, the consultant team established a set of assumptions regarding the type of building being constructed: a privately

developed and financed multi-unit residential building with at least 50 units, an elevator, and a leasing office. Making these assumptions enabled apples-to-apples comparisons between two scenarios: constructing such a building to existing (i.e., baseline) requirements and constructing it to be more inclusively designed.

Interviews and Cost Research

The consultant team conducted interviews with a housing developer, three architects, two general contractor project managers, and a general contracting executive involved in multi-unit residential development projects. Cascadia Partners started each interview by establishing the assumption set described above. Then, the consultant team sought to understand how accessibility and universal design features are incorporated into projects, establish how those features affect construction costs and operating performance, approximate any costs that might occur when building an inclusive design rather than to existing regulations, and understand the strategies practitioners use to manage associated costs and design tradeoffs. To supplement the interviews, the consultant team conducted targeted email outreach to multiple additional architects, contractors, and materials suppliers for expert guidance regarding outstanding questions. Many of the interviewed and emailed stakeholders had previously worked with The Kelsey on its development projects, though their work portfolios often covered both market-rate and affordable housing.

Interview findings and supporting cost research were used to categorize accessibility features into qualitative tiers based on their cost impacts: low, moderate, and high impact. Low Impact corresponds with an estimated \$0 to \$250 cost per unit to implement the feature, Moderate Impact corresponds with an estimated \$250 to \$1000 cost per unit, and High Impact corresponds with an estimated over \$1000 cost per unit. Because some accessibility features appear in common areas, per-unit costs are always calculated as the cost of the feature divided by the *total* unit count – not just units where the feature is implemented. Some features are assigned multiple impact categories because the cost of the feature varies depending on project context, development team decisions, and the extent of implementation.

Limitations

This study has several important limitations, which are described along with their implications below:

- The study focuses on California's Bay Area, a unique construction, housing, and cost context. This limits its direct applicability to other geographies.
- The study relies on a series of building- and project-level assumptions described above in the "Background Research and Assumption Set" subsection. This limits its direct applicability to other building and project types and contexts.
- The study's cost information collection method relies on literature review, online cost research, and stakeholder interviews. These methods are less precise than, for instance, exact cost estimations for specific projects or building designs. This limits the cost information to only representing best estimates.
- This study's stakeholders work in both prevailing and non-prevailing wage contexts, with the majority seeming to focus most on prevailing-wage projects. This limits the cost information by introducing the potential for conversion error or uncertainty when extrapolating cost information from prevailing-wage contexts to non-prevailing wage contexts (and vice versa).

Applicability of Accessibility Standards

This section provides an orientation to the applicability of various accessibility standards. Different accessibility standards apply depending on the jurisdiction, building use and type, housing type, and even funding source. Understanding when these requirements apply is critical but complex, as these standards frequently overlap and layer depending on the specific project context. A range of industry professionals and technical experts specialize in helping applicants navigate these requirements, including determining which standards apply and how they interact with one another.

Federal laws such as the Americans with Disabilities Act (ADA) and the Fair Housing Act (FHA), the Rehabilitation Act of 1973 (which includes HUD Section 504) are the first considerations when determining applicable standards. Each of these laws has a set of accompanying standards, guidelines, or rules that are in turn implemented at the state and local level within, among other things, building and technical codes. Sometimes, provisions of multiple of the above laws will apply at the same time.

California has two accessibility codes, Chapter 11A and Chapter 11B. Chapter 11A roughly implements the FHA's design guidelines, but it is not a safe harbor, meaning state and federal standards must both be consulted. Chapter 11B roughly implements the ADA's standards, though it is also not a safe harbor, meaning once again that both state and federal standards must be consulted for compliance. Chapter 11B also helps implement HUD Section 504, which requires certain accessibility provisions be met when federal funds are used for a housing project.

The table below provides further detail on relevant laws and codes and their applicability for this study. Which specific federal, state, and local regulations apply to each of the ten accessibility features is described in the Findings section, specifically within the Baseline Requirements subsection for the relevant feature. A snapshot of relevant code and standards text is included verbatim in Appendix C.

Note that if there are federal, state, and county standards for a single design feature and they all apply, all the standards must be met, with the most stringent standard taking precedence in cases of conflict. This study focuses on California's standards and context. Accessibility standards in other states or jurisdictions will differ from those presented in this report and generally be less stringent than those in California.

Regulation	Description	Overview of Applicability and Standards
Federal Regulation		
ADA	Federal Civil Rights Law and associated technical standards (2010)	The ADA applies to public accommodations, state and local government facilities, and commercial spaces, including those in privately owned residential buildings. ¹ Examples of such spaces within private residential buildings include retail spaces, leasing offices, and common-use areas open to the public.

¹ "2010 ADA Standards for Accessible Design," US Department of Justice, Civil Rights Division, effective September 15, 2010, <https://www.ada.gov/law-and-regs/design-standards/2010-stds/>. All subsequent citations of specific passages or codes within the 2010 Standards will appear in-line, using the following format: ADA Section #.

		ADA provisions can apply to privately owned affordable housing through HUD 504, which covers projects that use federal funds (24 CFR 8.22).² ADA provisions can also apply via the law's own definition of public facilities, which covers facilities using certain types of public dollars (28 CFR 35.151). Those two mandates are implemented in California by the California Building Code and the Division of the State Architect (CBC 11B 233, 809).³ The Division of the State Architect issues guidance on which programs trigger ADA compliance, such as in "Guide to Public Housing Regulated by Chapter 11B of the California Building Code."⁴ The ADA's rules are enforced via technical accessibility standards called the 2010 ADA Standards for Accessible Design, published by the Department of Justice, cited above. These standards set minimum requirements for the contexts mentioned above. <i>For the assumed building in this study:</i> ADA standards are directly relevant to
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² "Code of Federal Regulations (CFR) Title 24, Section 8.22," U.S. Department of Justice, Civil Rights Division. <https://www.ecfr.gov/current/title-24/subtitle-A/part-8/subpart-C/section-8.22>. All subsequent citations of the Code of Federal Regulations will appear in-line, using the following format: Title # CFR Section #.

³ California Building Code (Title 24, Part 2), Chapter 11B – Accessibility to Public Buildings, Public Accommodations, Commercial Buildings and Public Housing, § 11B-233 (Public Housing Facilities). , <https://up.codes/viewer/california/ca-building-code-2025/chapter/11B/accessibility-to-public-buildings-public-accommodations-commercial-buildings-and#11B-233> All subsequent citations of the CBC will appear in-line, using the following format: CBC Chapter and Section #.

⁴ "Guide to Public Housing Regulated by Chapter 11B of the California Building Code," Department of General Services, Division of the State Architect, https://www.dgs.ca.gov/-/media/Divisions/DSA/Publications/access/ch_11B/DSA_Public_Housing_Guidance.pdf.

		exterior pedestrian paths and entrances with automatic entry doors.
FHA (Title VIII of the Civil Rights Act of 1968)	Federal Civil Rights Law and associated design guidelines (1998)	The FHA applies to all dwelling units in elevator-served multifamily (4+ units) buildings and ground-floor dwelling units in non-elevator-served multifamily buildings (FHA 1.3).⁵ This includes privately owned and funded multifamily housing. As a rough heuristic, the FHA's guidance is less stringent than the ADA standards but applies to more housing. The FHA provides technical guidelines through the 1998 FHA Design Manual produced by HUD, cited above. The manual includes seven broad requirements for accessibility: 1. Accessible building entrance on an accessible route 2. Accessible and usable public and common-use areas 3. Usable doors (allow passage by persons in wheelchairs) 4. Accessible route into and through the covered unit 5. Light switches, electrical outlets, thermostats, and other environmental controls in accessible locations 6. Reinforced walls for grab bars 7. Usable kitchens and bathrooms

⁵ "Fair Housing Act Design Manual," U.S Department of Housing and Urban Development, Office of Fair Housing and Equal Opportunity, effective April 1998, <https://www.huduser.gov/portal/publications/PDF/FAIRHOUSING/fairfull.pdf>. All subsequent citations of specific guidelines within the 1998 FHA Design Manual will appear in-line, using the following format: FHA page #.

		Many of these requirements ensure the unit can be adapted to be more accessible in the future, rather than mandating full accessibility upon construction. <i>For the assumed building in this study:</i> The FHA has implications for building hallways, maneuverability through, and adaptability of individual housing units, baths and showers, and grab bars.
HUD Section 504 of the Rehabilitation Act of 1973	Federal law that prohibits discrimination under any program or activity receiving HUD financial assistance	HUD 504 applies to housing that received federal financial assistance. 24 CFR 8.3, defines “federal financial assistance” as any assistance provided or otherwise made available by the Department through any grant, loan, contract, or any other arrangement, in the form of: • Funds; • Services of Federal personnel; or • Real or personal property or any interest in or use of such property, including: ◦ Transfers or leases of the property for less than fair market value or for reduced consideration; and ◦ Proceeds from a subsequent transfer or lease of the property if the Federal share of its fair market value is not returned to the Federal Government. Housing developments subject to HUD 504 requirements must comply with certain accessibility standards for certain percentages of units. They must set aside a minimum of five percent of the total dwelling units (or at least one unit,

		whichever is greater) to include mobility features (24 CFR 8.22(b)). These mobility features (e.g., grab bars) must comply with ADA 809.2 through 809.4 and be on an accessible route per ADA 206 . An additional two percent of units (but not less than one unit) must include communication features compliant with ADA 809.5 (24 CFR 8.22(b)). These include features like visual strobes for doorbells and fire alarms to facilitate occupancy by hard-of-hearing or d/Deaf residents. HUD may require a higher percentage or number of accessible units if a demonstrated need is shown based on local conditions, data, or program requirements (24 CFR 8.22(c)). Local funding agencies (such as California's Tax Credit Allocation Committee) also sometimes require greater accessibility for projects receiving their financial resources or assistance.
Technical Standards		
ANSI A117.1-2009 Accessibility Code	Non-governmental technical standards	Many state building accessibility codes use ANSI A117.1-2009 as their basis. The ANSI standards are considered an FHA safe harbor, meaning compliance with the standards means compliance with the FHA. ⁶

⁶ U.S. Department of Housing and Urban Development, "Fair Housing Act Design and Construction Requirements; Adoption of Additional Safe Harbors," *Federal Register* 85, no. 235 (December 8, 2020): 78956, <https://www.federalregister.gov/documents/2020/12/08/2020-26376/fair-housing-act-design-and-construction-requirements-adoption-of-additional-safe-harbors>.

		The CBC incorporates some accessibility requirements based on ANSI A117.1 through Chapters 11A and 11B, but does not directly adopt ANSI A117.1 in its entirety as part of the building code. So, while ANSI offers foundational technical standards, the CBC establishes its own set of enforceable accessibility provisions adopted and modified specifically for California.
State Regulation		
CBC	State-level building standards	Covers all construction types and topics, including accessibility specifically in CBC Chapters 11A and 11B.
Chapter 11A	State accessibility standards for housing. The FHA Design Manual serves as the model code for Chapter 11A. ⁷ Though 11A implements the FHA, it is not an FHA safe harbor. ⁸	The CBC Ch. 11A translates the FHA's accessibility provisions into enforceable building standards for covered multifamily housing in California. In general, it applies to ground floor and elevator-served multifamily dwellings of 3 or more units and common areas that serve them (CBC 1101A-1102A). <i>For the assumed building in this study:</i> 11A, by implementing the FHA, has implications for building hallways, layout, and adaptability of individual housing units,

⁷ "Understanding Scoping and Technical Provisions of the California Building Code, Chapter 11A Housing Accessibility," Department of Housing and Community Development, Division of Codes and Standards, October 2025, <https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Divisions/Building/2025-CA-Building-Code-11A-Understanding-Scoping-Provisions.pdf>.

⁸ Rushmore Cervantes, "Request for Authority to Carry Out an Accessible Housing Program to Implement the Settlement Agreement Between the Plaintiffs," Housing and Community Investment Department of the City of Los Angeles. (2016), 4.

		baths and showers, grab bars, and doorbell alarms.
Chapter 11B	State accessibility standards for public buildings, public accommodations, commercial buildings, and public housing. Though 11B implements the ADA, it is not an ADA safe harbor. ⁹	The CBC Ch. 11B translates the ADA's accessibility provisions into enforceable building standards. In general, it applies to public buildings, public accommodations, public housing, public spaces, commercial buildings, and commercial spaces within privately-owned residential buildings (CBC 1.9.1.1-3, 11B-201.2). <i>For the assumed building in this study:</i> 11B, by implementing the ADA, has implications for exterior pedestrian paths and building entrances.
CALGreen Code	State-level green building code.	This state-level code, among other things, limits emissions from construction materials.¹⁰ It covers all new construction in California and references other environmental standards, including those from the California Air Resources Board (CARB) and the California Department of Public Health. <i>For the assumed building in this study:</i> CALGreen supplies baseline restrictions on VOCs in building materials.

⁹ Evan Terry Associates, *2022 California Standards for Accessible Design Guide*, in consultation with California Division of the State Architect–Access Compliance, "Safe Harbors," accessed via Corada, <https://www.corada.com/documents/2022CBCPG/safe-harbors>.

¹⁰ "2025 California Green Building Standards Code, Title 24, Part 11," California Department of General Services, accessed May-August 2026, <https://codes.iccsafe.org/content/CAGBC2025P1>.

Report Structure

The report proceeds in the following order: Findings, Conclusions, and Appendices.

The Findings are organized with one subsection for each of the 10 primary accessibility features. Each feature's subsection summarizes the relevant background research, interview findings, and cost research. These findings cover Targeted Implementations (initial, fundamental steps to support accessible and inclusive design that may exceed baseline regulations) as well as one or more Enhanced Implementations (additional important steps for inclusive and accessible design). The subsections are ordered exterior features, interior common-area features, interior in-unit features, and finally building-wide features.

The Findings also include a subsection providing the consulting team's professional opinions regarding 10 secondary accessibility features The Kelsey expressed interest in. These 10 features were not extensively researched or discussed with interviewees, but – given the rest of the research – were given a cursory cost evaluation.



3

Findings

- › Pedestrian Paths Width
- › Pet and Service Animal Relief Areas
- › Automatic Entry Doors
- › Usable Corridors
- › Adaptable Units
- › Visible Alerts
- › Roll-in Showers
- › Grab Bars
- › Outdoor Noise Control
- › Low-VOC Materials
- › Secondary Accessibility Features

Pedestrian Paths Width

Wider exterior paths leading to or between buildings to allow easier use for people with mobility devices.

Cost Drivers

- Size of concrete area to be added
- Minor potential for displaced building area on highly constrained or complex sites.

Cost Category

- Low impact
- Sidewalks are relatively inexpensive to widen and costs are spread across all units. Many paths already exceed code's width requirements to feel generous and promote congregation.

Pedestrian paths are exterior paths through the site leading to and from buildings and a street, transit stop, parking area, etc. This feature determines how many people using mobility devices can utilize the path at the same time, pass each other, or travel side-by-side.

Baseline Requirements

The 2010 ADA Standards, FHA Design Manual, and CBC Chapter 11B provide the baseline accessibility requirements for the pedestrian paths to and between new multifamily buildings.¹¹ The ADA, FHA, and CBC, in combination, require one accessible route from site arrival points to the accessible building entrance as well as between buildings and facilities on the site (ADA 206, CBC 11B-206, FHA 1.3). The ADA and FHA require a 36-inch minimum width along accessible routes (ADA 403.5.1, FHA 2.15 referencing ANSI 4.3). Turns in the path are required to be 42 inches approaching the turn, 48 inches at the turn, and 42 inches leaving the turn (ADA 403.5.2). Passing spaces of 60 inches must be provided at intervals of 200 feet (ADA 403.5.3). The CBC goes further, requiring 48 inches absent an unreasonable hardship finding (CBC 11B-403.5.1, Exception 3), including at sharp 180-degree turns (CBC 11B-403.5.2). Path widths must be 60 inches minimum every

¹¹ For more information about the building and construction assumptions used to determine which accessibility codes apply, see the "Methodological Approach" section. For more information on in-line code citations, see the footnotes in the "Applicability of Accessibility Standards" subsection.

200 feet for passing space, which mirrors the ADA standard (CBC 11B-403.5.3). The FHA's turning and passing space requirements are equivalent to or less stringent than the ADA's and CBC's requirements (FHA 2.15 referencing ANSI 4.3).

Inclusive Design Approach

- Targeted Implementation – Provide a pedestrian path at a minimum of 4 feet to allow an ambulatory person to pass a wheelchair or scooter user.
- Enhanced Implementation – Provide primary pedestrian walkways that connect buildings, main site entries, or other main site features that are a minimum of 6 feet in width, while others are 4 feet minimum width. This allows two mobility device users to travel side-by-side and allows someone with a mobility device to turn around more easily anywhere on the path.

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

- Targeted Implementation means setting a path minimum of 48 inches and applying it universally, regardless of whether the path is intended as an ADA and CBC required accessible route. *This would result in wider paths for some secondary routes within or through the site.*
- Enhanced Implementation means raising the minimum width to 72 inches for routes from site arrival points to entrances, as well as between buildings on site. *This would result in wider paths for the primary accessible routes within or through the site.*

Construction Costs

Public works bids from Riverside County, Contra Costa County, and the City of San Francisco suggest the cost to build sidewalks along public right-of-ways in California at prevailing wages is approximately \$15-25 per square foot.^{12, 13, 14} In an interview, a general contractor that leads prevailing-wage affordable housing

¹² "Pourroy Road Widening Project: Summary of Bids," Riverside County Transportation Department, 2025, https://trans.rctlma.org/sites/g/files/aldnop401/files/2025-08/PourroyRd.Wide_MHSpgsRd.SWalk_BidOpen.082025.Cover_BidSummary.Subs_.pdf.

¹³ "Sidewalk Inspection and Repair Program: Schedule of Bid Prices," City of San Francisco Public Works, 2019, <https://sfpublicworks.org/sites/default/files/Schedule%20Bid%20Prices%206-11-19.pdf>.

¹⁴ "Land Development Unit Price Guide for Improvement Bond Estimate," Contra Costa County Public Works Department, 2024, <https://www.contracosta.ca.gov/DocumentCenter/View/7500/Unit-Prices-Guide-POL-44-rev-2024-PDF?bidId=>.

projects confirmed that the cost range remained appropriate when updating from standard landscaped square footage to concrete plaza or path. That means 100 sf of additional concrete would be expected to cost \$1,500-\$2,500 in a prevailing wage context and below \$100 per unit for a 50-unit building. The consultant team would expect lower costs in states where construction is more affordable or jobs where prevailing-wage labor (sometimes shorthanded as union labor) isn't used. Evidence suggests construction costs could generally be lower by 10% or more for non-prevailing wage projects in California.¹⁵

Contractors and architects interviewed generally agreed that:

- Urban, multistory, elevator-served sites are unlikely to have significant lengths of pedestrian paths crossing the site and many will not have more than one building to connect.
- At primary entrances, pedestrian paths are already often generously wide or designed as congregation space as a best practice.

Combined, the above factors suggest limited, if any, additional costs in Marin's or urban development settings.

Hidden Costs

In cases with constrained sites with limited acreage, steep slopes, or unusual configurations, wider paths could hypothetically complicate site design. The worst-case scenario would be that a site design allows for no spare inches, and as a result, the wider paths would cut into the building footprint. One architect reported a similar scenario where a site had significant slopes and 5-foot-wide paths switchbacked up the slope fit dimensionally, but 6-foot-wide paths did not. In that case, the 5-foot-wide paths would still meet the Targeted Implementation approach. However, the example demonstrates the usefulness of having flexibility to offer meaningful accessibility and inclusive design through various implementation approaches and combinations of features, as it can help manage costs.

Operating Considerations

No operating cost considerations were identified during research and interviews.

¹⁵ UC Berkeley Turner Center for Housing Innovation, "Low-Income Housing Tax Credit Construction Costs: An Analysis of Prevailing Wages," (2024), <https://turnercenter.berkeley.edu/wp-content/uploads/2024/08/Low-Income-Housing-Tax-Credit-Construction-Costs-An-Analysis-of-Prevailing-Wages-August-2024.pdf>.

Building Size and Scale Considerations (if any)

Building size could modulate the cost impact of implementing this feature. Holding the linear feet of pedestrian paths constant, a larger building with more housing units will have lower per-unit costs for those paths than a smaller building with fewer units. In other words, larger buildings with more units are likely to see lower cost impacts from this factor in many instances. However, in a suburban, multi-building development context, adding more units may mean adding more buildings, which would likely correspond with an increase in necessary linear feet of pedestrian paths. This would reduce or eliminate the economies of scale effect described above.

Cost Category and Conclusions

Low cost impact.

Overall, this feature seems unlikely to introduce substantial new development costs. Further, several cost mitigation strategies are available. Maximizing the building area and coverage on the site and orienting buildings towards the public sidewalk or parking area minimizes path length and concrete costs. Rather than providing a single accessible path to the main entrance, a larger paved plaza designed for gathering exceeds width requirements while adding value for residents. This approach reflects design best practice: accessible, well-designed entries roll the cost of wider paths into a design feature that increases the overall property appeal.

The consulting team recommends writers and implementers of accessibility guidelines or regulations to offer flexibility on highly constrained sites, as that will minimize the potential cost and building value implications of this and other inclusive design features.

Pet and Service Animal Relief Areas

On-site area where residents can take pets or service animals to go to the bathroom without leaving the property.

Cost Drivers

- Size of relief area
- Type of drainage system
- Type of turf
- Displacement of rentable space

Cost Category

- Low impact
- Relief areas can be relatively low-cost per unit due to being a shared amenity. Impact is lowest when relief areas do not displace rentable square feet (SF). If relief areas displace rentable SF, affordable housing can often reallocate SF to mitigate the downside, while market-rate housing may face larger impacts due to lost rent.

A pet and service animal relief area provides residents – particularly those with disabilities – an easier way to let their pets or service animals go to the bathroom without leaving the property. This makes it easier for residents with disabilities to have pets and service animals.

Baseline Requirements

There are no accessibility code standards requiring or defining pet relief areas at the federal, state, or local level in Marin County. Several architects indicated that jurisdictions' plumbing codes may contain provisions that push pet relief areas to connect to sanitary sewer systems.

Inclusive Design Approach

- Targeted Implementation – Provide at least a small area outside for the pet and service animal relief that does not require residents to leave the property. Must provide a pet waste bag dispenser and a covered garbage receptacle for pet waste bags.
- Enhanced Implementation – Provide an enclosure and water supply for the pet and service animal relief area, in addition to the items above. Must provide a water source and basin that can be replenished without needing to touch the

basin, have a porous surface, and gate hardware must have design cues indicating the appropriate pushing or pulling action to open (e.g., plate or bar for pushing, U-shaped handle for pulling).

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

- Targeted Implementation means having a small turf or grass area outside with a pet waste bag dispenser and a covered garbage receptacle. *As the above features are not required under code, all associated features and costs are new.*
- Enhanced Implementation means adding an enclosure and water supply in addition to the targeted implementation items. *Again, as the above features are not required under code, all associated features and costs are new.*

Construction Costs

An architect and a general contractor that the project team consulted had incorporated a pet and service animal relief area in line with the Targeted Implementation approach into the courtyard of an apartment building developed by The Kelsey. The relief area is roughly 8-by-10-foot and is made of artificial turf atop an AirDrain geocell and clean $\frac{3}{4}$ drainage rock. The relief area drains via the geocell and rock into adjacent planters rather than the sewer system. A waste bag dispenser, garbage receptacle, and a hose bib for rinsing the area are all provided.

That relief area was added late in the construction planning process and completed at an estimated total construction cost of \$5,000–\$10,000 at Bay Area prevailing wages, excluding the adjacent planters (which had already been part of the design). A second architect, unaffiliated with that project and The Kelsey (and with experience designing pet relief areas on the West Coast), concurred that that cost estimate seemed reasonable but encouraged conservatism toward the higher end of the range.

More elaborate systems with plumbed sanitary sewer drains are possible but cost significantly more; simpler systems installed over existing concrete may be less expensive but require greater maintenance. One architect consulted recommended doubling the \$5,000–\$10,000 estimate for more complex installations.

Note that the consultant team would expect lower costs in states where construction is more affordable or jobs where prevailing-wage labor isn't used.

Evidence suggests construction costs could generally be lower by 10% or more for non-prevailing wage projects in California.¹⁶

Hidden Costs

In most cases, a pet relief area would be located within planned outdoor or courtyard space and would not compete with rentable square footage. However, if for some reason no outdoor or courtyard space can be reallocated, implementing this feature could hypothetically mean substituting rentable square footage for a pet relief area. In theory, this may not only affect a ground floor or roof deck but also developable airspace above it. This space tradeoff has important financial implications that differ depending on the context:

- In an affordable housing context, a pet relief area may not result in enough lost square footage to reduce total units or bedrooms, meaning any lost square footage may not directly affect overall building rental rolls or space programming (though reduced square footage could affect units' rentability).
- In a market-rate context, with Marin County's high rental rates and inelastic supply, substituting 80 SF of rentable square footage for a pet relief area could result in meaningful rent loss, especially if it reduces – for example – a 1-bedroom apartment to a studio. Assuming such a rentable square footage loss is fully internalized via reduced rents and affects a single story (not developable airspace overhead), a loss of 80SF in Marin County roughly equates to \$35,000 to \$40,000 in lost building value as of 2026. Under those same assumptions, losing that 80 SF on multiple stories of an apartment building proportionally scales up that loss in building value.¹⁷

Operating Considerations

Staff may periodically need to clean and clear out the pet relief area using the attached hose, as well as empty the trash can. This could add costs to common area maintenance and responsibilities.

¹⁶ UC Berkeley Turner Center, "Low-Income Housing Tax Credit Construction Costs."

¹⁷ Approximated via direct capitalization method, assuming 5% vacancy loss, 35% operating expense ratio, \$3.75 psf rent, and a 5.75% capitalization rate. Rents from Rentometer report for San Rafael, CA, accessed June 2026. Capitalization rate from a Marin Apartment Investments sales comparables report for 2025.

Building Size Considerations (if any)

Building size could modulate the cost impact of implementing this feature. Holding the number and size of pet relief areas constant, a larger building with more housing units will have lower per-unit costs for such areas than a smaller building with fewer units. In other words, larger buildings with more units are likely to see lower cost impacts from this feature in many instances. However, if the pet relief area substitutes for rentable square footage on one story, as well as the developable space above it, as in the hypothetical explored above, a larger building could continue to incur value losses on each additional story. This would counteract the economies of scale effect described above.

Cost Category and Conclusions

Low cost impact, with larger impacts possible but seemingly avoidable.

Targeted – and even Enhanced Implementations – may be relatively low cost on a per-unit basis. However, if implementing this feature means substituting it for rentable space, the cost impact of this feature could change significantly due to building valuation impacts. This is most possible in a market-rate development context. Any jurisdictions or organizations seeking to implement guidelines or requirements related to this feature should carefully assess the likelihood that such a standard would lead to rentable square footage and building value loss.

Automatic Entry Doors

Doors that open automatically at exterior entrances.

Cost Drivers

- Number of automatic doors
- Electric/access control
- Type of activators

Cost Category

- Impact Varies
- **Low impact** when few doors are involved, or buildings already include automation in the design (e.g., senior housing, affordable housing with mobility-features units).
- **Moderate impact** for buildings with no planned automatic doors, most often market-rate developments.

Automatic entry doors at exterior entrances are an important feature for inclusive design, providing easier access to residents with physical disabilities and mobility devices, as well as residents with strollers, bikes, or carrying bags.

Baseline Requirements

The 2010 ADA Standards, FHA Design Manual, and CBC Chapter 11B provide the baseline accessibility requirements for the entrances to new multifamily buildings with public-facing leasing offices and lobbies.¹⁸

The ADA, FHA, and CBC 11B do not require automatic doors in multi-unit residential development, but door operability must still meet defined accessibility thresholds. Exterior hinged doors and sliding or folding doors must be designed to meet maximum opening force limits equal to 5 pounds (CBC 11B-404.2.9.1-4, ADA 404.2.9). When one of every eight exterior door leaves is a powered door, the remaining exterior doors can have a maximum opening force of 8.5 pounds (CBC 11B-404.2.9 exception), along with required clearances and maneuvering space (ADA 404.2.4). The FHA's width, clearance, thresholds, hardware, and opening force requirements are equivalent or less stringent than the ADA's and CBC's

¹⁸ For more information about the building and construction assumptions used to determine which accessibility codes apply, see the "Methodological Approach" section. For more information on in-line code citations, see the footnotes in the "Applicability of Accessibility Standards" subsection.

requirements (FHA 3.3 referencing ANSI 4.13). Automatic or power-assisted doors can be used to meet maximum opening force limits and are most likely to be offered where force limits are difficult to achieve or where residents will experience the highest accessibility benefits (e.g., primary entrances, select common spaces). The MCC does not include relevant standards for automatic doors beyond what is required by the CBC.

Inclusive Design Approach

- Targeted Implementation – Automatic doors at primary exterior entrances. Has a vertical push bar activator or motion sensor and no in-ground operators at exterior doors. If only one leaf of a pair of doors is automated, select which door, and place the push bar activator based on the anticipated direction of traffic flow.
- Enhanced Implementation – Automatic doors at every exterior entrance used by residents or visitors. Has a vertical push bar activator or motion sensor and no in-ground operators at exterior doors.

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

- Targeted Implementation means providing automatic doors with a push bar activator or motion sensor at primary exterior entrances. *Depending on the building design, this could result in as few as one but potentially several automatic door installations.*
- Enhanced Implementation means providing automatic doors with a push bar activator or motion sensor at all exterior entrances. *This would result in additional automatic door installations beyond Targeted Implementation.*

Construction Costs

Converting an exterior entry door to automatic operation requires electrical power, an automatic door opener, and an activator. Some configurations also require a bollard for the activator. Material costs for automatic door openers range from roughly \$2,000 for a low-end build to over \$8,000 for a more complex, heavy-duty, or extensive install, depending on maker, finish, single- or dual-door configuration, activator specs, latch and strike specs, and supplier markup. Labor requires both an electrician and a commercial door installer, estimated at 8 hours per door and between \$100 and \$200 per hour in a prevailing wage context. At Bay Area

prevailing-wage rates, two general contractors estimated total costs are likely \$10,000 to \$15,000 per door, not counting the costs of the door itself. The consultant team would expect lower costs in states where construction is more affordable or jobs where prevailing-wage labor isn't used.

One architect noted that, in practice, automatic doors at primary entrances are already standard in their designs as a best practice and liability protection measure, suggesting these costs may already be incorporated into baseline construction budgets for many projects – at least for a handful of doors.

Hidden Costs

No additional hidden costs were noted during interviews.

Operating Considerations

No operating cost considerations were identified during research and interviews. However, it is safe to assume that automatic entry doors – in requiring additional hardware – will also come with additional maintenance responsibilities.

Building Size Considerations (if any)

Building size could modulate the impact of this feature on overall costs. Larger buildings with more units but the same number of entrances as a smaller building will mathematically have lower per-unit costs. As such, larger buildings are more likely to experience lower per-unit costs associated with these entry approaches. However, as building size increases, the number of entrances – particularly secondary entrances for Enhanced Implementation – will likely increase, offsetting at least a portion of those savings.

Cost Category and Conclusions

Low to moderate cost impact, depending on context and whether the design already incorporates some automatic doors.

Installation of automatic doors, though not required, is most likely to already be planned in affordable and public housing contexts subject to the ADA/CBC 11B, especially those required to provide a proportion of units with mobility features. In those cases, Targeted and Enhanced Implementations may require marginally more doors to be installed as automatic, but some entrances may already be planned for automatic entry as a compliance measure, design best practice, or liability protection.

Automatic doors may be installed as a best practice in some market-rate buildings, but this practice is not known to be widespread and is anticipated to depend on the project context. Installing four automatic entry doors could plausibly cost over \$30,000 for such buildings, even after accounting for the fact that evidence suggests costs could generally be lower by 10% or more for non-prevailing wage projects in California.¹⁹ For a 50-unit building, this change could amount to over \$600 per unit in added costs. This is a meaningful moderate cost impact.

¹⁹ UC Berkeley Turner Center, “Low-Income Housing Tax Credit Construction Costs.”

Usable Corridors

Wider corridors within the building to allow two mobility devices to pass each other or go down the hall together.

Cost Drivers

- Additional building square footage for a wider hallway, or...
- Unchanged building square footage, but reallocation of rentable space to common space

Cost Category

- Impact Varies Widely
- **Low impact** for affordable housing projects that can reallocate SF from units to halls without affecting bedroom counts and rents.
- **High impact** for projects that must add new building SF or lose rent due to smaller units, with market-rate developments most susceptible.

Usable corridors allow two residents with mobility devices to pass each other, travel side-by-side in a conversation, and allow easier passage for support animals. Wider corridors give space for cane sweep navigation for someone who is blind, create a sense of openness and comfort for all residents, enhance unit entry door privacy, and facilitate space for people who are communicating in sign language.

Baseline Requirements

Applicable Standards for Baseline Case

The FHA and CBC Chapter 11A provide the baseline accessibility requirements for the corridors in new elevator-served multifamily buildings that are not otherwise subject to the ADA or HUD Section 504.²⁰

The FHA and CBC establish a baseline in which accessible routes in multi-unit residential development are designed to accommodate wheelchair movement. While the FHA sets a minimum clear width of 36 inches with required passing spaces

²⁰ For more information about the building and construction assumptions used to determine which accessibility codes apply, see the “Methodological Approach” section. For more information on in-line code citations, see the footnotes in the “Applicability of Accessibility Standards” subsection.

(FHA 4.4), the CBC generally increases the baseline by requiring 44-inch-wide corridors for interior accessible routes serving occupant loads of more than 10 (CBC 1119A). Where corridors are narrower than 60 inches, both standards require passing spaces at intervals not exceeding 200 feet, allowing two wheelchair users space to pass periodically rather than continuously.

Inclusive Design Approach

- Targeted Implementation – Incorporate wide corridors with a minimum width of 72 inches. Corridors can be reduced to 60-inch minimum width for a max of 48-inches before widening to 72 inches for at least 72 inches, or at a dead-end corridor of not more than 20 feet in length.
- Enhanced Implementation – Incorporate wider corridors with a minimum width of 78 inches or more for more than half of corridors.

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

- Targeted Implementation means all corridors are 72 inches wide. According to several architects and general contractors, 60-inch corridors are industry standard, meaning an additional 12 inches in width to provide a Targeted Implementation.
- Enhanced Implementation means more than half of all corridors are 78 inches or wider. Given the industry standard above, that means at least an additional 12 inches in width for half of corridors and 18 inches in width for the other half of corridors.

Construction Costs

Two general contractors interviewed suggested that if corridor widening takes square footage directly out of units, no construction cost premium is likely to be incurred. In such a case, low-cost square footage from the middle of rooms would be replaced with similar cost square footage in the middle of hallways.

One general contracting executive interviewed suggested that if widening the corridors forces the building footprint to expand by 12 to 18 inches, the added area would cost roughly \$125-\$150 per square foot in the Bay Area prevailing wage context. This is significantly less than a typical project's average hard cost per square foot, which is driven higher due to the inclusion of much more expensive

spaces and elements (e.g., bathrooms, kitchens, walls). As an example, adding 600 sf of additional corridor space across a multi-story building at \$125 per square foot would cost \$75,000 in total, or \$1,500 per unit. Evidence suggests such costs could generally be lower by 10% or more for non-prevailing wage projects in California.²¹

As demonstrated in the Hidden Costs section below, that five-figure additional cost may still be more attractive to a developer relative to giving up rentable square footage and taking a hit to overall building value.

Hidden Costs

On constrained sites where the building footprint cannot expand, wider corridors would reduce unit rentable square footage. For example, across a 100-foot corridor, a developer could lose up to 100 to 125 square feet from units for Targeted or Enhanced Implementations. Spread across 10-12 units per floor, this would result in a loss of 10-12 sf per unit. This dynamic would repeat itself on each floor.

Per an affordable-housing developer interviewed, affordable units' rental rates are set based on unit type (i.e. bedroom count) and area median income rather than by unit size. While bigger units may be easier to lease due to marginally greater appeal, they will not produce excess rent. In other words, so long as wider corridors do not reduce unit or bedroom count, any loss in unit square footage caused by wider corridors will not directly affect rent rolls except through rent concessions or other costs incurred because of a long lease-up.

In a market-rate context, the picture is muddier. Size is one factor among many that determine rental rates, including floor plan and unit type, finishes, amenities, location, and market supply and demand dynamics. It is plausible to imagine, for some operators and designs, 10-12 sf lost per unit due to 6-9 inches less in unit depth would not meaningfully affect floor plans and cause only marginal decreases in rental rates, if any at all. It is also easy to imagine some situations and operators who – either due to fierce competition, experience, or sophisticated rent setting tools – do internalize corresponding losses in rent due to minor square footage losses. At Marin County rental rates, that square footage loss could theoretically amount to \$35-\$45 per unit per month or \$21,000 to \$24,000 in lost potential revenue each year for a 50-unit building. In the worst-case scenario, assuming the loss in square footage is *fully* internalized via reduced rents, a loss of 600 rentable square feet across a six-story building in Marin County would result in the ballpark

²¹ UC Berkeley Turner Center, “Low-Income Housing Tax Credit Construction Costs.”

of \$250,000

to \$300,000 in lost building value as of 2026.²² Depending on time-value-of-money and financing implications, this could be a considerably worse scenario than paying five figures in construction to widen corridors.

On average across different operators and contexts, the consulting team expects an effect somewhere in the middle, where minor losses in rental square footage spread across many units do reduce rental rolls and building value significantly, but perhaps less than the worst-case-scenario math above suggests. Regardless, the financial impacts this trade-off presents are significant.

Operating Considerations

No operating cost considerations were identified during research and interviews.

Building Size Considerations (if any)

Bigger buildings have more total corridor length, and smaller buildings have less total corridor length. For this reason, increasing or decreasing building size does not seem likely to cause different cost outcomes than those represented here.

Cost Category and Conclusions

Cost impact varies from low to high, depending on whether the building is market-rate or affordable.

This feature has a relatively low impact in affordable housing contexts where the building will not expand but instead consume small amounts of unit square footage. The feature has a high cost impact when it results in the construction of a larger building with more non-rentable space or when it displaces rentable square footage in a market-rate building, decreasing rental rolls and overall building value.

²² Approximated via direct capitalization method, assuming 5% vacancy loss, 35% operating expense ratio, \$3.75 psf rent, and a 5.75% capitalization rate. Rents from Rentometer report for San Rafael, CA, accessed June 2026. Capitalization rate from a Marin Apartment Investments sales comparables report for 2025.

Adaptable Units

Adaptable units aren't yet fully accessible but include the following features that enable them to be converted to accessible units in the future: accessible routes through the unit, backing for grab bars in all bathrooms, and removable cabinets.

Cost Drivers

- Grab bar backing
- Larger turn radiuses necessitate the addition or reallocation of square footage in the unit

Cost Category

- Impact Varies
- **Low impacts** are likely for affordable housing, as larger turn radiuses would often already be required and wider wall backing is a minimal cost.
- **Moderate impacts** are likely for some market-rate projects due to needing larger spaces for turning (e.g., larger bathrooms) and/or more SF per unit.

Inclusive design is strengthened by the addition of adaptable (i.e., ready to be made fully accessible in the future) units where full accessibility is not yet possible or required. Adaptability can look many ways. A strong set of guidelines for adaptability includes meeting applicable FHA and building code requirements, meeting ADA 809.2 requirements for accessible routes, providing in-wall backing for future mounting of grab bars at toilets, tubs, and showers, and making cabinets under all bathroom or kitchen sinks removable or adaptable without the use of special tools for knee-and-toe space for mobility-device users.

Baseline Requirements

The FHA and CBC Chapter 11A provide the baseline accessibility requirements for housing units in new multifamily, elevator-served buildings that are not otherwise subject to ADA standards or HUD 504.²³ Many of these requirements serve to make units adaptable for greater accessibility in the future rather than requiring full

²³ For more information about the building and construction assumptions used to determine which accessibility codes apply, see the “Methodological Approach” section. For more information on in-line code citations, see the footnotes in the “Applicability of Accessibility Standards” subsection.

accessibility at initial occupancy. Specifically, the FHA and CBC require covered multifamily units to provide:

- Continuous accessible circulation into and throughout the unit (CBC 1119A, FHA 4.3). The accessible route must be 36 inches wide to facilitate 90-degree turns for wheelchair users (FHA 4.4, CBC 1119A). Clear floor space – usually at least 30 inches by 48 inches – must also be provided in bathrooms and kitchens for maneuverability (FHA 7.3, CBC 1133-1134A). Turning space of 60 inches must be provided in some U-shaped kitchens (FHA 7.9, CBC 1133A).
- Reinforced walls in in-unit bathrooms for future mounting of grab bars at toilets, tubs, and showers (FHA Chapter 6)
- Adaptable kitchen and bathroom elements like removable base cabinets (CBC 1133A and 1134A) and repositionable countertops (CBC 1133A.4.1).

The local MCC does not include provisions beyond the CBC for adaptable units.

Inclusive Design Approach

Targeted Implementation:

- Meet FHA and other applicable local and state building code accessibility requirements.
- Meet the ADA 809.2 requirements for accessible routes (further articulated in Chapters 3 and 4 of the 2010 ADA Standards). This includes similar width and change-in-level requirements as the FHA Design Manual, but requires a larger turning radius within rooms (60-inch clear turning circle or T-turn space, as found in ADA 304.3) rather than the FHA's smaller clear floor spaces (30 inches by 48 inches, as found in FHA 7.3).
- Include grab bar backing for toilet, tub, and shower in all bathrooms, whether or not grab bars are actually installed.
- Make any cabinets installed under all bathroom or kitchen sinks removable or adaptable without the use of special tools, to enable a forward approach.

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

Building to the baseline requirements means constructing units with:

- Accessible routes that meet FHA and CBC Chapter 11A requirements but do not include 60-inch clear turning radiuses required under ADA 809.2.
- Grab bar backing six inches in width around toilets, showers, and bathtubs.
- Removable or adaptable cabinets under bathroom and kitchen sinks for mobility device users.

Implementing an inclusive design approach would mean constructing units with:

- Larger 60-inch turning radiuses, likely affecting room dimensions and floor plans
- Grab bar backing made from wider stock than required by code (2x10 vs 2x6)
- Meeting the rest of the baseline requirements as they are in code or law

Construction Costs

Turning radiuses

Complying with the ADA 809.2 codes will mean including larger 60-inch turning radiuses in housing units, with bathrooms, kitchens, and bedrooms usually presenting the greatest challenges. If larger turn radiuses cause the building's floorplate to expand, one general contractor estimated the cost would only be roughly \$125-150 per square foot in a Bay Area prevailing wage setting. This is a fraction of the typical cost per square foot in the Bay Area because it involves adding blank square footage in the middle of rooms, without expensive fixtures or as many materials and trades. The consultant team would expect lower costs in states where construction is more affordable or jobs where prevailing-wage labor isn't used. The implications of turn radiuses when the floorplate does not expand are discussed in the Hidden Costs section below.

The general contractor interviewed also noted that providing a 60-inch turning radius is already common in affordable housing due to overlapping state and federal requirements. Though this is not our baseline case, that fact does alleviate the above cost concerns in that specific context. Indeed, larger turn radiuses will often already be required for much new affordable housing, specifically that which falls under the ADA's definition of public facilities or HUD Section 504 requirements for housing that receives federal funding (28 CFR 35.151, implementing ADA 233; 24 CFR§ 8.22, implementing HUD 504).

Grab bar backing

Providing wider backing material does not result in significant costs. Hypothetically, upgrading from 2x6s to 2x10 backing for grab bars would marginally increase the lumber cost per linear foot, resulting in an estimated premium of roughly \$50 per unit for a typical mix of 1-and 2-bathroom units (see the Grab Bars Section for more detail). This is not a meaningful amount in the context of California housing construction. Furthermore, in practice, grab bar backing costs may already be absorbed into standard construction. Grab bars are not the only fixtures that benefit from backing: towel bars and similar elements do as well.

Hidden Costs

As described above, units with larger 60-inch turning radiuses will tend to have slightly larger bathrooms and potentially also larger kitchens and bedrooms, though that depends on the initial design. An FHA-compliant full bathroom can be as small as roughly 40-50 square feet (FHA 7.66). Efficiently designed ADA-compliant bathrooms can come as small as 55-60 square feet. Designers can compensate for larger ADA-compliant bathrooms in several ways. They can:

- Expand the floorplate at the cost rates described above.
- Hold the floorplate unchanged, but compensate for larger bathrooms by shrinking other spaces (e.g., kitchens, living rooms, bedrooms).
- Hold the floorplate unchanged while increasing unit size and reducing unit count.

The first option's costs are explored above. The second option may make the overall unit or floor plan harder to rent. The third option would likely decrease the property's rental roll, reducing its overall cash flow and value. Determining exactly how different developers will navigate this space tradeoff isn't possible. For instance, developers may use a combination of the above strategies. However, it's clear that a tradeoff is present and could affect buildings' rent flows.

Operating Considerations

Retrofitting units to make them accessible is generally quite expensive, so there can be considerable long-term cost benefits to providing strong adaptability up front. One general contractor provided an example of 40 cabinets he needed to retrofit to make them removable at a cost of roughly \$20,000. He also noted that his projects include backing for all grab bars in the bathrooms as standard practice, even if it's not required (such as in the upper floors of non-elevator served buildings).

Building Size Considerations (if any)

None. Implementation is not expected to vary in cost depending on building size.

Cost Category and Conclusions

Low to moderate cost impact, depending on housing type and floor plans.

Inclusive, adaptive design can be provided by complying with federal and state regulations, and providing grab bar wall backing at nominal cost.

For affordable housing, larger turn radiuses will often already be required under the ADA's definition of public facilities or HUD Section 504 requirements, implemented by CBC 11B 304.3.1's radius standard. Even if they are not already required, they can likely be costlessly accommodated by reconfiguring unit floor plans while maintaining the same unit counts, which would leave the rental roll unaffected. The only downside is that smaller bedrooms, kitchens, or living rooms could affect unit rentability.

For market-rate housing, the floorplan reconfiguration approach described above may also be possible, though it could affect both rent that could be charged and rentability. The developer would have the choice of whether to accommodate the larger turning radiuses through the above approach or by reducing units (and rents) or by increasing the building size (and construction costs). Regardless, the financial impacts of this feature are expected to be higher in such a market-rate context.

Visible Alerts

Visible alerts for doorbells, smoke, fire, and carbon monoxide warnings.

Cost Drivers

- Number of additional devices for visible alerts (e.g., strobes, visual doorbells)
- Connection to the building alarm system

Cost Category

- Impact Varies
- **Moderate impact** when implementation is targeted at 25% of units.
- **High impact** when visible alerts are installed in 50-100% of units.
- Affordable housing with communication features units will face lower impacts, as some units must already have visible alerts.

Visible alerts include hardwired doorbells with lights or high-contrast buttons, as well as visible alarms for smoke, fire, and carbon monoxide warnings. Visible alerts allow people who have low or no hearing to have more housing choice.

Baseline Requirements

CBC Chapters 9 for fire protection and 11A for accessibility provide the baseline requirements for door signal devices and alarms in housing units in new multifamily, elevator-served buildings that are not otherwise subject to HUD Section 504, the 2010 ADA Standards, or other funding agency requirements related to visible alerts.²⁴ Specifically, projects must comply with requirements for positioning of door signal devices (CBC 1132.10), and the Chapter 9 provisions listed below. The MCC does not have provisions beyond the following CBC requirements regarding visible alerts:

- Each dwelling unit primary entrance has a door buzzer, bell, chime, or equivalent mounted a maximum of 48 inches above the floor and connected to permanent wiring (CBC 1132A.10).

²⁴ For more information about the building and construction assumptions used to determine which accessibility codes apply, see the “Methodological Approach” section. For more information on in-line code citations, see the footnotes in the “Applicability of Accessibility Standards” subsection.

- Each dwelling unit has smoke and fire audible alarms in each bedroom, on the ceiling or wall outside of each separate bedroom, and one on each level of the unit (CBC 907.2.11.2).
- Public use areas and common use areas have audible and visible alarm appliances (CBC 907.5.2.3.1).
- Each story that contains dwelling units and bedrooms includes the capability to support future visible alarm notification appliances that can accommodate wired or wireless equipment (CBC 907.5.2.3.3).
- The building includes a manual fire alarm system that activates occupant notification systems (CBC 907.2.9.1)

Inclusive Design Approach

- Targeted Implementation – Visible alerts are installed in 25% of dwelling units
- Enhanced Implementation 1 – Visible alerts are installed in 50% of dwelling units
- Enhanced Implementation 2 – Visible alerts are installed in 100% of dwelling units

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

Implementing this accessibility feature means including visible alerts in 25% to 100% of housing units. This is completed by:

- Installing audible CO and smoke alarms with built-in strobes or supplemental strobes that pair with audible alarms
- Installing doorbell or door signaling hardware that activates a visible strobe rather than just an audible chime.

In other words, implementation means *installing less standard and slightly more extensive hardware (e.g., doorbells, strobes, relays, wires) than is typical, doing so in a greater proportion of units, and connecting that audible/visual hardware to the alarm system active in the building common areas.*

Construction Costs

One general contractor noted during an interview that visible alarms typically do not require specialized wiring, and installers can accommodate a range of alert types without added complexity. That suggests that the main sources of cost increases

are devices and hardware itself, and marginal increases in labor hours for additional mounted devices. Those include:

- **Additional or more expensive carbon monoxide and smoke alarm hardware with built-in or supplemental strobes:** Carbon monoxide and smoke alarms with audible alerts as well as built-in strobes can be marginally more expensive than simple audible alarms (e.g., [BRK SC9120B](#) and [BRK SMC0110LED-AC](#), which result in a ~\$50 price premium). Supplemental strobes can also be used and can add a few hundred dollars in cost for material and additional labor ([BRK SLED177 Strobe](#) or [BRK SC9120B with SLED177 Strobe Combo](#)). Depending on the bedroom count, one to four (or more) alarms with visual alerts will be needed in each unit.
- **Doorbell hardware that pairs with visible strobes:** One interviewed architect indicated that his team has used a now-discontinued product from Jaron as well as an [Edwards Signaling 7005-G5 Hotel Room Annunciator](#) system. This hardware can cost roughly \$200 for a doorbell and horn/strobe. An inclusive design would mean horn/strobes in all bedrooms, which would add roughly \$100 in material cost per bedroom. In larger units with one or more bedrooms, more low-voltage electrician labor hours appear to be needed for this installation than an audible-only doorbell and chime.

One general contractor advised roughly \$800 per unit for visible smoke and carbon-monoxide alerts, including materials and labor at Bay Area prevailing wages. The doorbell system with multiple strobes likely falls in the same ballpark. For a 50-unit building with an equal mix of 1 and 2 bedroom units, Targeted Implementation (25% of units) would result in an estimated added cost of \$20,000 or \$400 per unit. Enhanced Implementation 1 (50% of units) would double that cost, and Enhanced Implementation 2 (100% of units) would double it again. Evidence suggests overall construction costs could generally be lower by 10% or more for non-prevailing wage projects in California, meaning lower costs are possible for a subset of projects.²⁵

Under federal law, visible alerts – also called “communication features” – are required in 2% of dwelling units in specific contexts (ADA 233.3.1.2, 809.5). This affects much of new affordable housing, specifically those projects that fall under the ADA’s definition of public facilities or HUD Section 504 requirements for housing that receives federal funding (28 CFR 35.151, implementing ADA 233; 24 CFR 8.22,

²⁵ UC Berkeley Turner Center, “Low-Income Housing Tax Credit Construction Costs.”

implementing HUD 504). Under state rules, visible alerts – also called “hearing/vision features” – are required in 10% of units in housing projects funded through CA’s Tax Credit Allocation Committee.²⁶ The 2010 ADA Standards are one allowable source of technical standards for units with communications features.²⁷ Those ADA standards require audible and visible alarms as well as a primary entrance doorbell with audible and visible alerts (ADA 233.3.1.2, 809.5). So, while visible alerts would most commonly not be required in any units for private housing projects, those funded through TCAC, federal funds, or subject to the ADA’s definition of public accommodation or public housing facility would already be required to have units with such alerts. This would reduce the incremental cost premium of Targeted Implementation by 8-40%, depending on whether 2% or 10% of units are already required to provide visible alerts.

Hidden Costs

Connections to the building-wide alarm system

Visible alarms need to be connected to building/common-area alert systems to coordinate strobing and ensure d/Deaf or hard-of-hearing residents are alerted to an audible alarm in the common part of the building. There may be additional costs associated with connecting visible alerts to the broader building-wide and common-area alarm system. However, CBC 907.5.2.3.3 already requires that each story that contains dwelling units and bedrooms includes the capability to support future visible alarm notification. This, along with the fact that multiple general contractors and architects consulted did not note any specific additional connection procedures or costs, suggests such connections could be nominal in cost.

Potential lack of acceptance by the broader renter pool

A developer interviewed said they would be reluctant to include visible alerts in more than the minimum required number of units because some residents don’t need them or don’t like the strobing feature. The developer said, on the margin, they would make

²⁶ “California Tax Credit Allocation Committee Regulations Implementing the Federal and State Low-Income Housing Tax Credit Laws,” California State Treasurer’s Office, California Tax Credit Allocation Committee, effective December 10, 2025, § 10325(f)(7)(K), <https://www.treasurer.ca.gov/ctcac/programreg/2025/regulations.pdf>.

²⁷ U.S. Department of Housing and Urban Development, “Nondiscrimination on the Basis of Disability in Federally Assisted Programs and Activities,” *Federal Register* 79, no. 100 (May 23, 2014): 29671, <https://www.federalregister.gov/documents/2014/05/23/2014-11844/nondiscrimination-on-the-basis-of-disability-in-federally-assisted-programs-and-activities>.

the unit less attractive to rent. However, codes generally require strobing features to be able to be turned off by the tenant, which may assuage this concern.

Operating Considerations

Visible alerts function as an extension of standard alarm and doorbell systems, so they are not expected to require maintenance, monitoring, or replacement costs beyond what a standard system would already require.

Building Size Considerations

The cost impact of visible alerts is likely to scale consistently with building size. A larger building complying with the same approach will need a proportionally larger number of devices, so the per-unit cost is unlikely to decrease meaningfully as building size increases.

Cost Category and Conclusions

Moderate to high cost impact.

For market-rate housing, Targeted Implementation has an estimated cost of several hundred dollars per unit. Enhanced Implementations double or quadruple the number of covered units, and therefore increase costs proportionally.

For affordable housing projects subject to “communication features” or “hearing/vision features” unit requirements, requirements to implement visible alerts in 2-10% of units would result in a decreased cost premium relative to the numbers above.

Roll-in Showers

Showers that can be used by people with mobility devices, such as a wheelchair.

Cost Drivers

- Number of roll-in showers
- Shower model and installation complexity
- Waterproofing and drains

Cost Category

- Impact Varies
- **Moderate impact** when implementation is targeted at 10-25% of units.
- **High impact** when implemented across greater proportions of units, especially if implementing in more units, raises the proportion of roll-in showers installed on wood-framed floors that need waterproofing.

Roll-in showers are showers with no-step thresholds that can be used by people with mobility devices such as wheelchairs. An inclusive multifamily design provides roll-in showers, installing them in a percentage of units and distributing them evenly between building floors and unit types (e.g., studios, 1-bedroom).

Baseline Requirements

The FHA and CBC Chapter 11A provide the baseline accessibility requirements for housing units in new multifamily, elevator-served buildings that are not otherwise subject to ADA standards or HUD 504.²⁸ The FHA Design Manual focuses on accessibility features surrounding the tub or shower, such as maneuvering space and reinforcement for grab bars, and does not dictate a specific type or size of tubs or showers themselves. Shower size becomes relevant when a shower is the only bathing fixture in the unit (no separate tub), in which case it must be at least 36 inches by 36 inches (FHA 7.58). CBC Chapter 11A provides shower standards for all bathrooms within covered multifamily dwelling units. The requirements are

²⁸ For more information about the building and construction assumptions used to determine which accessibility codes apply, see the “Methodological Approach” section. For more information on in-line code citations, see the footnotes in the “Applicability of Accessibility Standards” subsection.

generally for size, slope, and floor space, but do not dictate a specific shower type (CBC 1134A.6).

The ADA and CBC establish that roll-in showers are one compliant design option for accessible bathing facilities, but not a baseline requirement in multi-unit housing dwelling units. In the case of providing accessible showers in a dwelling unit, roll-in showers are one of multiple permissible configurations. The MCC does not provide standards for roll-in showers.

Inclusive Design Approach

- Targeted Implementation – roll-in showers installed in 10% of units in building
- Enhanced Implementation 1 – roll-in showers installed in 25% of units in building
- Enhanced Implementation 2 – roll-in showers installed in 50% of units in building

To receive points for certification, no more than half of roll-in showers can be concentrated on lower (concrete-podium) building levels, but should instead be distributed throughout the building and unit types.

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

Inclusive design provides roll-in showers even though state and federal regulations do not require them. Implementation *means replacing standard tub or shower installations with roll-in showers in at least one bathroom in 10% of units for Targeted Implementation, 25% of units for Enhanced Implementation 1, and 50% of units for Enhanced Implementation 2. It would also mean distributing those showers across unit types and building floors. Roll-in showers tend to be more expensive to purchase and install than standard tub/showers. They also can require expensive waterproofing measures depending on context.*

Construction Costs

A general contractor working in the Bay Area prevailing-wage project context shared that roll-in showers tend to cost at least \$1,000 more than a standard tub/shower for materials and installation, depending on the manufacturer, the surround installation, and whether the model requires a recess in the floor to achieve code compliance. Tile surrounds are more expensive than fiberglass or acrylic surrounds, and multi-piece surrounds are more expensive to install than single-piece surrounds. The contractor shared that the most cost-effective solution

they had found was Best Bath's ADA Compliant Single Piece Shower for roughly \$2,500-\$3,000 to install, including labor and a compressible water dam that allows wheelchairs to roll in but prevents water from escaping. That cost roughly \$1,000 more than their standard tub/shower install.

Beyond this baseline premium, costs can increase by thousands of dollars per shower if walls need to be reconfigured for larger units, if additional waterproofing is required, or if floor drains are required. The general contractor indicated that a floor drain with a trap primer could cost an additional \$4,000. This additional work, much of which is aimed at managing water that spills out of the shower, is most necessary for wood-framed stories or floors as a way to mitigate serious water intrusion risk. Essentially, all architects and contractors interviewed about this topic shared a strong preference to avoid roll-in showers on wood-framed floors. If roll-in showers were needed on wood-framed floors, interviewees tended to agree it was worth it to spend even multiple thousands of dollars more to add floor drains and/or extensive waterproofing. Grab bars and benches are not included in these estimates. The consultant team would expect lower costs in states where construction is more affordable or jobs where prevailing-wage labor isn't used.

The lowest-cost scenario installs half of roll-in showers on concrete floors, which reduces waterproofing concerns, and half on wood-framed floors, with an ADA-compliant compressible water dam or a T-shaped water stop to contain water in the shower. Under this scenario, a Targeted Implementation for a 50-unit building would result in an estimated \$15,000 to \$20,000 premium on the low end, with most of the cost premium stemming from the need for additional plumbing and water mitigation (e.g., floor drains) on wood-framed floors. Costs could be significantly higher if additional waterproofing or wall reconfiguration is required. Costs could be significantly lower if roll-in showers could be concentrated on concrete floors.

Hidden Costs

Roll-in showers carry elevated waterproofing risk on upper floors. Integrating roll-in showers with a concrete pour in podium construction is preferable to recessed installations in wood framing, which carry greater risk of water intrusion and associated repair costs over time.

Operating Considerations

- Retrofitting existing bathrooms to include roll-in showers is considerably more expensive than building roll-in showers up front. One case study shared by an

architect and contractor team cited an average cost of \$16,000 per roll-in shower retrofit.

- Buildings that have roll-in showers installed on wood-framed floors may face elevated long-term maintenance or repair risk related to waterproofing.

Building Size Considerations

Building size and construction type interact to affect the cost impact of roll-in showers. Larger buildings are more likely to include a mix of construction types, such as a concrete podium level topped by wood-framed stories. Even though inclusive design best practice is for roll-in showers to be distributed equitably among floors, larger buildings with concrete podiums will realize some overall and per-unit savings by building at least some roll-in showers on concrete floors. In contrast, buildings with proportionally more wood-framed stories may see a higher average per-unit cost of implementing this approach.

Cost Category and Conclusions

Moderate to high cost impact, with significant variability.

At the low end, a Targeted Implementation (10% of units) in a 50-unit building carries an estimated premium of \$15,000 to \$20,000, or roughly \$300 to \$400 per unit across the building in a prevailing wage setting. Evidence suggests construction costs could generally be lower by 10% or more for non-prevailing wage projects in California, so lower costs are plausible for a subset of projects.²⁹

Applying the same per-shower premium, Enhanced Implementations (25% to 50% of units) would result in estimated premiums of roughly \$50,000 to \$100,000, respectively, for a 50-unit building. Costs could be meaningfully higher if the building has no concrete floors, if the proportion of roll-in showers installed on wood-framed floors increases for Enhanced Implementations, if units require wall reconfigurations to fit roll-in showers, or if additional waterproofing is required in addition to floor drains.

²⁹ UC Berkeley Turner Center, “Low-Income Housing Tax Credit Construction Costs.”

Grab Bars

Grab bars next to toilets, tubs, and showers in bathrooms to prevent slips and falls.

Cost Drivers

- Backing
- Number of grab bars

Cost Category

- Impact Varies Widely
- **Low impact** when grab bar installation is targeted at 10% of units, with the rest receiving backing for future installation.
- **Moderate impact** when installing grab bars more extensively but not universally (i.e., in 100% of unit bathrooms).
- **High impact** when installing grab bars universally or near universally.
- Affordable housing with mobility features units will face lower impacts as some grab bar installation is already required.

Grab bars next to toilets, tubs, and showers in bathrooms increase convenience and safety for users. Entering and exiting tubs or showers can lead to slips and falls for people with or without a disability.

Baseline Requirements

The FHA and CBC Chapter 11A provide the baseline accessibility requirements for housing units in new multifamily, elevator-served buildings that are not otherwise subject to ADA standards or HUD 504.³⁰ In short, these standards require reinforcement (or backing) for grab bars but not installation of the grab bars themselves.

The FHA specifically requires reinforcement in bathroom walls to permit later installation of grab bars around the toilet, tub, shower stall, and shower seat (FHA 6.3). Minimum reinforcement is 6 inches wide by 24 inches long behind and beside

³⁰ For more information about the building and construction assumptions used to determine which accessibility codes apply, see the “Methodological Approach” section. For more information on in-line code citations, see the footnotes in the “Applicability of Accessibility Standards” subsection.

toilets, though the manual recommends exceeding this (FHA 6.3-5). At bathtubs and showers, reinforcement is required only in solid-construction walls (not glass shower walls) and must run the full width of the relevant wall(s) at grab-bar mounting height, generally 33 inches to 36 inches above the floor (FHA 6.8-9, 6.12-13). The CBC Chapter 11A also only requires backing in residential units (CBC 1134A.5-7). MCC does not provide standards beyond the CBC.

Inclusive Design Approach

- Targeted Implementation – Include grab bar backing for toilet, tub, and shower in all bathrooms. Install grab bars in 10% of all units. Backing to be from 2x10 material to provide more flexibility in installation heights. Use decorative grab bars to avoid an institutional feel. Install grab bars at 34 inches high.
- Enhanced Implementation 1 – In addition to the above, install toilet side grab bars in all dwelling unit bathrooms, and all grab bars in 25% of all units.
- Enhanced Implementation 2 – In addition to the above, install two grab bars in tubs and showers (one at entry, one opposite entry) in all dwelling unit bathrooms and all grab bars in 50% of units.
- Enhanced Implementation 3 – Install all grab bars in all units.

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

- Targeted Implementation means providing grab bar backing in all units, and installing all grab bars for 10% of units.
- Enhanced Implementation 1 means providing backing in all units, installing toilet side grab bars in all dwelling unit bathrooms, and installing all grab bars in 25% of units. We estimate this amounts to backing in all units and 40% of possible grab bars throughout the building.
- Enhanced Implementation 2 means installing toilet side grab bars and two grab bars in tubs and showers in all dwelling unit bathrooms, and all grab bars in 50% of units. We estimate this amounts to backing in all units and 75% of possible grab bars throughout the building.
- Enhanced Implementation 3 means installing all grab bars in all units.

In summary, each tier of implementation includes wider grab bar backing and increases in the number of grab bars installed compared to the baseline requirements.

Construction Costs

Upgrading backing material from 2x6s to 2x10s increases the cost per linear foot only marginally. Assuming an average of roughly 30 linear feet of backing per bathroom and an even mix of one-and two-bathroom units, this upgrade adds an estimated \$50 per unit across the building.

Installing a grab bar requires the bar itself (\$40 to over \$100), fasteners and anchors (up to \$30 but usually far cheaper with appropriate backing in place), and a negligible amount of silicone. Materials therefore run \$50 to \$100 per bar. One work order provided by a general contractor estimated labor at 0.5 hours per bar and roughly \$150 per hour in a prevailing wage setting, not including overhead. That amounts to a total of roughly \$150 per bar installed.

Assuming an average of six bars per bathroom and an even mix of one-and two-bathroom units, a 50-unit building built to Enhanced Implementation 3 would incur an estimated \$70,000-\$80,000 in combined backing and grab bar installation costs. By comparison, a Targeted Implementation, which requires backing in all units but full grab bar installation in only 10% of units, would incur an estimated \$8,000 in cost. The consultant team would expect lower costs in states where construction is more affordable or jobs where prevailing-wage labor isn't used.

Under federal law, "mobility features" are required in 5% of dwelling units in specific contexts (ADA 233.3.1.1). This affects much of new affordable housing, specifically those projects that fall under the ADA's definition of public facilities or HUD Section 504 requirements for housing that receives federal funding (28 CFR 35.151, implementing ADA 233; 24 CFR 8.22, implementing HUD 504). Under state rules, mobility features are required in 15% of units in housing projects funded through CA's Tax Credit Allocation Committee.³¹ Among other things, mobility features units must include grab bars (ADA 809.1-4, 607.4, 608.3, 609). So, while grab bars would most commonly not be required in any units for private housing projects, those funded through TCAC, federal funds, or subject to the ADA's definition of public accommodation or public housing facility would already be required to have units with installed bars. This would reduce the incremental cost premium of Targeted Implementation by 50-100%, depending on whether the unit was subject to TCAC rules. It would provide a less sizable discount for Enhanced Implementations.

³¹ "California Tax Credit Allocation Committee Regulations Implementing the Federal and State Low-Income Housing Tax Credit Laws," California State Treasurer's Office, Section 10325(f)(7)(K).

Hidden Costs

No hidden costs were identified during interviews.

Operating Considerations

Retrofitting a bathroom with grab bars for a reasonable accommodation request would be more costly than installing at construction. An affordable housing developer interviewed shared that installing grab bars up front reduces reasonable accommodation requests and litigation risk.

Building Size Considerations

Because the costs of wider backing are minimal and grab bar installation costs scale directly with the number of units that receive them, the cost impact of this design feature is not expected to benefit from the economies of scale seen in features with fixed, common-area costs. Per-unit costs are likely to remain relatively consistent across building sizes.

Cost Category and Conclusions

Impact varies widely from low to high, scaling with the degree of implementation.

For both market-rate and affordable housing, backing upgrades add a modest, consistent premium of about \$50 per unit regardless of level. The costs of grab bar installation scale with the percentage of units required at each level. A Targeted Implementation for a 50-unit building would incur an estimated \$8,000 in total cost, or roughly \$160 per unit across the building in a prevailing wage context. Evidence suggests such costs could generally be lower by 10% or more for non-prevailing wage projects in California.³² Collectively, this suggests a low cost impact for a Targeted Implementation.

However, a 50-unit building with full grab bar installation would incur an estimated \$70,000–\$80,000, or roughly \$1,400 to \$1,600 per unit across the building. This impact, even after potentially discounting the above numbers for a lack of prevailing wages, would be high.

Still, it is worth noting that buildings — primarily affordable housing projects — that include units required to offer mobility features would experience a reduction in cost premium due to grab bar installation already being required in 5–15% of units.

³² UC Berkeley Turner Center, “Low-Income Housing Tax Credit Construction Costs.”

Outdoor Noise Control

Windows and doors that reduce external noise.

Cost Drivers

- Ambient noise level of the site
- Baseline glass package required to meet the 45 dB threshold
- Window type (e.g., single-hung, casement)

Cost Category

- Impact Varies
- **Moderate impact** on quiet sites, where upgrading from base windows with STCs in the 20s to windows with STCs in the 30s is relatively more affordable (+10% in costs).
- **High impact** on loud sites, where upgrading to STCs in the upper 30s or even 40s could more than double the cost per window.

Outdoor noise control enhances hearing and communication, reduces distractions, and enhances user comfort. It also provides a better sensory experience for people with cognitive and neurodevelopmental disabilities by reducing sensory overload, lowering cognitive fatigue, and protecting emotional regulation.

Baseline Requirements

FHA and ADA design standards and guidelines do not include provisions for outdoor noise control or sound dampening. CBC Section 1206 focuses primarily on interior sound separation, but it introduces a key exterior-facing standard by requiring that noise from outside sources not exceed 45 dB within habitable rooms (CBC 1206.4). This necessitates well-sealed, tight-fitting exterior doors and – more importantly for elevator-served apartments with interior corridors and interior-facing doors – window assemblies with high sound-dampening performance. There are no standards in the Marin County Code related to outdoor noise control.

Inclusive Design Approach

Targeted Implementation: All doors and windows exceed the required Sound Transmission Class (STC) to control outside noise sources. Higher STCs yield greater sound dampening.

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

Since unit doors face an interior corridor for this study's assumed building, they are not the focus of this cost analysis.

On a quiet site (e.g., not near a highway, industrial use), baseline window assemblies (3mm dual-pane glass in vinyl or aluminum frames) are likely adequate to meet the 45 dB performance standard for indoor noise. Implementing this feature in that scenario means having windows that exceed the typical baseline window's STC rating. *This would result in modestly more expensive window assemblies.*

On a loud site, windows with advanced sound-dampening performance are already needed. Implementing this feature in that scenario means having windows that exceed that already elevated sound-dampening performance. *This could result in significantly more expensive window assemblies.*

Construction Costs

A typical STC rating for two layers of insulated glass is in the upper 20s. A Northern California window supplier interviewed shared their baseline 5'x3', 3mm thick, dual-pane single-hung and casement windows achieved 28-29 in STC ratings. Achieving a higher STC rating typically involves increasing the glass pane thickness, increasing the number of panes, and/or exchanging a glass pane for laminated glass. For instance, the supplier shared that doubling the thickness of one of the panes of glass would help achieve an STC rating in the mid-30s, and increasing pane thickness and swapping in one or two layers of laminated glass could achieve an STC rating in the 40s.

A general contractor interviewed on the topic estimated that moving from baseline to higher performance windows would likely carry a 20% premium. However, the general contractor felt the cost premium could more than double depending on the performance needed. The window supplier confirmed this evaluation, with slight nuances. Moving from the baseline window assembly's upper 20s STCs to mid-30s in STCs required a roughly 10% cost premium. Higher premiums are possible depending on the window type, with single-hung windows necessitating a larger percentage cost premium for equivalent sound performance to casement windows. Moving from mid-30s in STCs to the 40s in STCs can cause the price to more than double.

Exactly how much of a premium this design feature will incur depends significantly on the ambient noise level on the site, the baseline glass package required to meet

the 45 decibel (dB) threshold, and the type of windows selected for use. However, the examples below will help illustrate the various possibilities. On a quiet site where standard STC performance is acceptable, a unit with six 3'x5' windows priced at a baseline of roughly \$3,000 total could expect a total premium of roughly \$300 (or 10%) to upgrade the STCs to the 30s. That cost scales to \$15,000 across a 50-unit building. On a loud urban site where elevated STC performance is already required, a unit with 6 windows with STCs in the mid-30s priced at \$3,300 total could expect a total premium of over \$4,000 (or over 100%) to upgrade the STCs to the 40s. That cost scales to over \$200,000 across a 50-unit building.

Hidden Costs

The costs cited above could escalate dramatically depending on the amount of glazed window area. Fully glazed walls and large windows would result in much higher dollar premiums due to the increase in surface area.

Operating Considerations

Once a building is occupied, window replacement is a costly and disruptive solution for ongoing noise issues. A developer shared that reasonable accommodation requests to improve sound dampening could likely be solved with lower cost and simpler interventions than replacing windows (e.g., offering the tenant a quieter unit, hanging wall- or ceiling-mounted sound-dampening panels, adding sound-dampening features to vents). Window performance is important and should be considered in the design phase, but the primary steps to improve sound performance when the building is operating don't focus on replacing the window.

Building Size Considerations

Bigger buildings have more windows and smaller buildings have fewer windows. For this reason, increasing or decreasing building size does not seem likely to cause different cost outcomes than those represented above.

Cost Category and Conclusions

Moderate to high cost impact, depending on site-specific factors.

Buildings on quiet sites may already meet the baseline 45 dB standard with standard window assemblies and glass packages, making it relatively less costly – such as several hundred dollars per unit – to upgrade the glass and provide this inclusive design feature. Buildings on louder sites, or those with more extensive glazing, may see costs jump considerably higher – such as several thousand dollars per unit – due to the high cost premium associated with high-end sound-dampening glass.

Low-VOC Materials

Building materials such as adhesives or paints with reduced emissions of volatile organic compounds, which can affect residents' health. Low-VOC materials reduce environmental hazards.

Cost Drivers

- Amount of material to upgrade and material type (paint, flooring, adhesives, etc.)
- Material durability; long-term maintenance and replacement costs

Cost Category

- Impact Varies
- **Low impact** when using low-VOC materials for a Targeted Implementation, as CA already requires that for new construction.
- **Unknown impacts** for using no-VOC materials and designating chemical-free zones. Potential cost premiums are not possible to quantify without more extensive study.

Low- or no-VOC building materials reduce environmental hazards to residents and visitors. Some people with disabilities have other underlying health issues that are exacerbated by environmental chemicals. VOC-containing materials emit toxic fumes from products or processes to form ozone, which may cause residents to have health effects.

Baseline Requirements

The FHA and ADA design standards and guidelines do not include provisions for low-VOC materials.

California's CALGreen code establishes a baseline in which low-VOC materials are not an optional upgrade, but a standard condition of construction in California multi-unit residential development. CALGreen Section 4.504 effectively normalizes the use of low-emitting paints, coatings, adhesives, sealants, flooring, and composite wood products by requiring compliance with established VOC content and emission limits. In practice, this means that a typical multifamily project in California already must use code-compliant low-VOC products across many interior finishes and building elements. Higher performance goals, such as using only zero-VOC materials or expanding the low-VOC scope to include furnishings or cleaning products during

building occupancy, would be considered above-baseline enhancements rather than typical conditions.

Inclusive Design Approach

- Targeted Implementation – Use low-or no-VOC building materials (paints, adhesives, caulking, carpets, vinyl tile, linoleum, particle board, plywood, and/or engineered wood products). Ensure that low- or no-VOC products are durable (for example, some no-VOC paints are more susceptible to physical damage and do not adhere as well). Meeting CALGreen code for VOC limits aligns with a Targeted Implementation.
- Enhanced Implementation 1 – Use no-VOC building materials rather than low-VOC materials. Use no- and low-VOC materials for furniture and other FF&E elements.
- Enhanced Implementation 2 – In addition to the above, designate lobby/common spaces as chemical/odor-free zones. Designate one or more floors, or an entire building, as chemical/odor-free.

Cost Analysis

Comparing the Baseline vs. Inclusive Design Builds

- Targeted Implementation means using low- or no-VOC building materials and ensuring their durability. *The Kelsey has indicated this is the equivalent to complying with CALGreen Code for VOC limits (e.g. adhesives, sealants, aerosol paints, coatings, caulks), CA Department of Public Health Standard Methods of Evaluation of VOCs (e.g., carpet and resilient flooring), and the CA Air Resources Board's Air Toxics Controls for formaldehyde in composite wood products like plywood.*
- Enhanced Implementation 1 means no-VOC building materials must be used, and low- or no-VOC materials must be used for furniture, fixture, and equipment elements. *This would result in materials that are lower in VOC emissions than required by the CALGreen, CA Department of Public Health, or the CA Air Resources Board.*
- Enhanced Implementation 2 means, in addition to the above, the building would operate with designated chemical and odor-free areas. *This would result in additional limitations on materials and cleaning solutions that are used in the building.*

Construction Costs

Two factors make this feature's cost impacts challenging to quantify. First, many building materials emit VOCs, and the price differential between standard low-VOC products and no-VOC products will vary from material to material, brand to brand, and supplier to supplier. Second, VOCs may be emitted from products due to the inclusion of chemical compounds that strengthen the durability of the building material (e.g., stronger acrylic resins). For that reason, there may be distinct long-term maintenance and replacement cost impacts of each low- and no-VOC material used in construction.

The only definitive conclusion to draw is that a Targeted Implementation aligns with California state law. In other words, using low-VOC materials should not cause any cost premium because it's already required by law. Providing Enhanced Implementations is, however, likely to cause at least some cost premiums per multiple interviewees, though the magnitudes of such premiums are impossible to determine without a detailed, dedicated study. One architect shared the general sense that the premium going from low- to no-VOC materials may not be large for many materials. However, the architect noted that in their experience, there isn't a strong consistency in when a premium is incurred, nor is there transparency as to why a premium exists. This raises a variety of questions: are premiums sometimes mitigated by supplier relationships, by brand selection, by the fact that some affordable housing developers' internal design guidelines already call for no-VOC materials?

Several examples may begin to provide a sense of the cost dynamics:

- **Behr's Premium Plus Low-VOC flat interior paint** retails for \$35 per gallon, whereas its no-VOC **Premium Plus EcoMix Plant-Based flat interior paint** retails for \$39 per gallon – a 11% premium at San Rafael's Home Depot as of July 2026. Other brands, however, are sure to differ. And supplier-contractor relationships may mitigate or change the pricing structure to nullify – or at least modify – the cost difference.
- Greenguard-Gold-certified low-VOC **click-lock luxury vinyl plank from Palenque Park** retails for \$2-3 per square foot, while **linseed-oil-based no-VOC Marmoleum click-lock plank** retails for \$7-8 per square foot – an over 100% premium at San Rafael's Home Depot as of July 2026. The same caveats as described in the bullet above apply here. Moreover, one architect noted that linoleum products have historically had lower maintenance costs and less

frequent need for replacement relative to vinyl tile, which perhaps offsets some or all of the cost differential.

Hidden Costs

No hidden costs were identified through interviews. Comprehensive and reliable information on cost comparisons were simply less available for this feature relative to others.

Operating Considerations

Industry-wide knowledge of how low- and no-VOC materials perform over time is still developing, meaning a definitive understanding of long-term maintenance and replacement costs is not available. However, multiple interviewees suggested the durability of low- and no-VOC materials could be lower than for unrestricted materials, leading to higher long-term costs. But even that general suggestion isn't universal, given the above details regarding the durability of linoleum versus vinyl tile.

Building Size Considerations (if any)

Building size could theoretically modulate the impact of this feature on overall costs. Enhanced Implementations focus on common areas (through chemical and odor-free designations and low-VOC furniture). Low-VOC or chemical-free materials and products used in common areas come with costs that get distributed across more units as building size increases, potentially lowering the per-unit cost impact in larger buildings. Low-VOC materials used inside individual units, such as flooring or paint, scale directly with the number of units, so larger buildings will not see the same per-unit cost reduction for these materials. As a result, larger buildings may see slightly lower per-unit costs from this approach due to its partial focus on common-area applications.

Cost Category and Conclusions

Low-cost impact for a Targeted Implementation. The cost impacts of Enhanced Implementations are not known.

A Targeted Implementation of this feature should not cause a cost premium since it aligns with statewide standards. However, Enhanced Implementations do not lend themselves to simple cost comparisons, given the extensive and various materials involved and long-term performance to account for. The available evidence suggests upfront cost premiums are possible for some products, such as paint and flooring, but durability and long-term maintenance costs remain broadly unquantified, and further research would be needed to establish them with confidence.

Secondary Accessibility Features

Cascadia Partners conducted a preliminary evaluation of ten additional inclusive design and accessibility features beyond the ten primary features analyzed above. These features are more varied than the primary set and include physical design details, operational or staffing practices, and a broader design principle for distributing accessible units throughout the building. Unlike the primary features, these secondary features were not the subject of stakeholder interviews or targeted cost research. The assessments below instead reflect the consulting team's professional judgement, informed by the interviews, cost research, and regulatory findings for the primary features in this report. As a result, they should be read as directional, qualitative assessments rather than the substantiated cost estimates provided for the primary features.

User Focus Groups During Design

Description

Involve people with disabilities and potential future users or similar populations in focus groups/sharing feedback before design begins. Document the comments and requests and incorporate into the project's list of Universal or Inclusive Design goals.

Cost Considerations

The primary cost drivers are the time invested in organizing the focus group, conducting it, documenting participant comments, and incorporating feedback into the project's design. A development team may wish to engage a professional to organize and facilitate the session. Depending on the depth and formality achieved, a developer or hired professional may spend as few as 10 hours to over 40 hours on organizing, finding participants, preparing for, hosting, and summarizing the results of a focus group, with greater costs for more focus groups, depth, and services. At \$200 per hour for professional assistance, this could cost in the thousands overall, amounting to a couple hundred per unit – though potentially meaningfully less. Because a focus group serves the entire building, its cost is shared across all units, so the per-unit cost declines as the building adds units. The magnitude of these costs is modest, particularly on a per-unit basis, but it is incurred early in the project and thus draws on more at-risk and expensive capital than costs incurred later. Overall, this feature carries clear, modestly significant costs. Any design changes

that result from participant feedback carry their own separate costs but also provide resident benefits.

Accessible Outdoor Seating and Furnishing

Description

Seating options are available in a variety of outdoor locations, in a variety of heights, and with arms to assist stability and getting up/down.

Cost Considerations

This feature would simply replace planned outdoor seating and furnishing with seating and furnishing that complies with the design direction in the description. Meeting that direction – furnishings in a variety of locations, heights, and with the inclusion of arms – does not clearly come with additional costs, in particular because some seating without arms is allowed. Because outdoor seating and furnishing is located in common spaces, any premium associated with this feature would be shared across units. A larger building may reduce per-unit costs, but a larger building may also come with more common space to furnish. Regardless, the magnitude of any such cost premiums is expected to be low in total as well as on a per-unit basis. Overall, there are no clear, significant costs associated with this feature.

Directional Signage

Description

Signage must include the room name or use in addition to room numbers, in both raised text and braille, represented in high-contrast (light text on a dark field), and with pictograms for non-English speakers, children, and others who cannot read.

Cost Considerations

The primary cost driver of this feature is the number of signs a building requires, and whether adding additional text, braille, and pictograms adds significant cost. Individual signs are relatively inexpensive, even when they incorporate pictograms and braille, appearing producible for under \$100 each and often significantly less. Those modest per-sign cost premiums could accumulate across an entire building. And because the number of signs needed generally scales with building size, the

per-unit cost is likely to remain fairly constant as a building grows larger. Regardless, the magnitude of costs associated with this feature appears low. While the feature carries costs, they are not obviously significant.

Corridor Handrails

Description

Install a handrail on one side of a corridor (Targeted Implementation) or both sides (Enhanced Implementation).

Cost Considerations

The cost drivers of this feature are material and installation costs, for both the handrail backing and the handrail itself. Those costs would increase as the handrail length increases, meaning roughly twice the cost for Enhanced Implementation. Because the length of handrail needed generally scales with building size, the per-unit cost is likely to remain fairly constant as a building grows larger.

The magnitude of these costs has the potential to be significant. Blocking may already be required in the wall assembly, but not at handrail height, meaning additional backing may need to be added to the framing plan. A brief web search of ADA-compliant handrails suggests hardware can cost \$10 or more per linear foot, depending on the material and finish, and labor could come at a rate similar to that observed for grab bar installation – roughly \$150 per hour in a prevailing-wage setting and less for a non-prevailed job. With both factors in mind, it seems plausible that adding corridor handrails could cost into five figures in total and hundreds on a per unit basis. In other words, there are clear, significant costs associated with implementing this inclusive design feature.

Automatic Faucets and Soap Dispensers

Description

Automatic, touch-free faucets and soap dispensers in common restrooms.

Cost Considerations

Commercial-grade touch-free models can cost meaningfully more than manual faucets due to their sensors and need for electrical power, whether from batteries

or hard wiring. Where a faucet is hard-wired, new electrical costs will be incurred; plumbing costs, by contrast, should remain reasonably consistent with a manual faucet installation. Commercial-grade automatic soap dispensers appear to be available for under \$60 apiece, though they require batteries and installation labor. Because these features are installed only in common restrooms, their cost is shared by all units and decreases with the size of the building (assuming the number of common restrooms does not increase linearly with building size). It seems plausible that upgrading to touch-free faucets and soap dispensers in several bathrooms could total over four figures in cost. However, once spread across all the units, these costs do not appear to be clearly significant in magnitude.

Handheld Shower Unit

Description

Including a broadly usable and functional handheld shower can enhance design inclusivity. The feature includes a flexible metal hose with swivel connections, a pause control to stop and restart water easily, a smaller handheld with targeted spray, and a textured oval grip.

Cost Considerations

The handheld device itself is the main direct cost driver, since it is the only component that would differ from a typical installation of a fixed shower head. The cost premium of including such handheld devices would likely be small and would scale with the number of units in which the fixture is installed. Furthermore, handheld shower devices are required under ADA 608.6 and would be required in some developments – often within affordable housing – that must provide mobility features in a portion of units.

The other indirect cost consideration related to this feature is that one general contractor interviewed mentioned that handheld shower devices are a waterproofing risk, as they can lead to water spraying outside the shower pan. It is possible, particularly in combination with roll-in showers, that this feature leads to hidden costs like further waterproofing or plumbing for drains. Without that established with certainty, this feature appears to carry a clear cost, but not one that is obviously significant.

Integrated Community

Description

An integrated community is one where people with and without disabilities live side by side as neighbors, and where disabled people are not isolated or segregated within a building. Integrated communities support disabled people in living in their own homes with the services and supports they need, rather than in settings that separate them from the broader community. This right to live in housing and services in the community is codified in Title II of the Americans with Disabilities Act³³ via the Olmstead v. L.C. Supreme Court Decision of 1999.³⁴

Cost Considerations

Creating an integrated community is a multifaceted endeavor. Because of that, the sources of potential costs range widely, touching multiple parts of a development or operating pro-forma: from financing to construction to operating expenses.

In the affordable housing realm, many funding streams are siloed and incentivize serving only single populations. As a result, implementing an integrated community necessitates dedicating more resources and time to accessing and layering diverse financing sources.

For operations, an integrated community requires more resources and intentionality than serving a single, uniform population or a resident population with few or no people with disabilities. Management should expect complexities when serving a diverse resident base. If those complexities necessitate additional staff and processes, adequate funding would be needed to support those investments (e.g., see Inclusion Supports and Services Personnel, Inclusion and Disability Training). Even so, evidence suggests funders of affordable housing and resident services can reap considerable cost savings by serving people with disabilities in the community rather than in institutional settings.³⁵

³³ Americans with Disabilities Act of 1990, Title II, 42 U.S.C. §§ 12131–12165 (1990). <https://www.ada.gov/law-and-regs/regulations/title-ii-2010-regulations/#subpart1>

³⁴ Olmstead v. L.C. ex rel. Zimring, 527 U.S. 581 (1999).

³⁵ Joe Caldwell et al., *Home and Community-Based Services Improve Outcomes While Reducing Costs* (Waltham, MA: Community Living Policy Center, Lurie Institute for Disability Policy, Brandeis University, April 2026), <https://heller.brandeis.edu/community-living-policy/research-policy/publications/pdfs/briefs/hcbs-improve-outcomes-and-reduce-costs.pdf>.

For construction, dispersing mobility or communication features throughout a building can, in theory, add costs depending on construction type and location of features. One example uncovered by this study is the cost of distributing roll-in showers throughout a building. When placed on wood-framed floors rather than concrete floors, cost premiums can more than double due to the need for floor drains to prevent water-intrusion risk. There may be other instances where such distribution and integration add construction cost, but this study did not uncover any.

In light of the above, we conclude that an integrated community is perhaps best understood as a legal and moral obligation that affects the cost of – or even necessitates in the first place – other accessible or inclusive design features. It provides profound benefits to residents and can provide cost savings to funders, while also having material cost impacts on development.

Inclusion Supports and Services Personnel

Description

A dedicated staff trained in inclusion, disability, supports, and services.

Cost Considerations

The cost of providing this inclusive design feature depends on how many additional staff members a building needs to meet the intended outcome, how many additional staff hours are needed, and what – if any – wage premium is associated with specialized training in disability inclusion and support services. Unlike the largely one-time construction costs for other features in this report, these staffing costs recur.

Put another way, the cost here is dependent on a building's standard staffing plan. For a community that already had planned supportive services, including inclusion supports would not require the cost of additional hires but likely more minimal costs to provide additional training or specialized supports. For a community that does not include planned supportive services but does include some general onsite staff, this feature's cost may again stem from training or any wage premiums associated with retaining qualified staff. For a community that had not planned for many or any staff, the incremental cost of inclusive supports and services personnel would be higher.

Building size affects this cost. Since one staff member or small team can serve an entire building, the cost is shared across units rather than scaling per unit, so larger buildings would see a lower cost per unit at a given staffing level. However, there is likely a threshold. As a building gets larger, there may be additional staffing needs to adequately serve the number of residents, increasing the per-unit cost.

In short, if additional staff must be hired and retained, this feature will carry a clear, significant cost. If existing property management or onsite staff can be trained to provide inclusion support services, then this feature may only result in a periodic training cost.

Inclusion and Disability Training

Description

All building staff and personnel receive training in disability rights, inclusion, accessibility, and equity prior to building occupancy or within the first 60 days of onboarding.

Cost Considerations

The main cost drivers are whether the training is developed in-house or licensed from a third-party provider, the cost per staff member trained, and the delivery format. Live or in-person sessions may cost more per person than self-paced online modules. Building size affects this cost favorably. Staff headcount typically grows slower than unit count, and this cost would be shared across units. This feature is not likely to carry a significant cost.

Plain Language Leasing Information

Description

Provide a plain language overview with leasing and income verification paperwork.

Cost Considerations

The main cost drivers are the staff time for the upfront drafting cost and the frequency of updates required when leasing terms or income limits change. This would be a cost that is shared across units, meaning the drafting cost would be spread across applicants and leasing packets. Templatizing and standardizing tools

for plain language leases and housing tools can control costs. Given the availability of AI tools capable of cleaning, making plain, and reconfiguring text, this feature does not appear to have a significant per-unit cost.

Error!entryway



4

Conclusion

Conclusion

Many of the accessibility features studied are low-cost, especially when using a Targeted Implementation approach

This study found that a number of accessibility features – wider pedestrian paths, pet and service-animal relief areas, automatic doors, grab bars, and low-VOC materials – can be included in new construction at relatively low individual cost when using a Targeted Implementation approach.

Combining the study’s findings for the individual features estimates their overall cost impact for:

- The assumed building typology: A privately developed and financed multi-unit residential building in the Bay Area in California with 50 units, an elevator, a leasing office, and an even mix of 1- and 2-bathroom units.
- Under ideal construction conditions: A non-prevailing wage project with a concrete podium on a quiet, adequately sized, and otherwise uncomplicated site.

A recent study found that the average total development cost of market-rate multifamily projects in California is roughly \$450,000 per unit.³⁶ This study estimates that a Targeted Implementation of the ten primary accessibility features could be completed under the conditions listed above for 1% or less of that per unit cost (see Appendix B for calculations and assumptions).

This is a modest cost – though one that is still meaningful in the context of tight development budgets and rigid financial performance thresholds. Adding the features is also an investment that reduces the need for future retrofits while benefiting all current residents. Everyone’s abilities and needs change over the course of their lives, and inclusive design principles offer flexibility and resilience to those various changes and circumstances.

The accessibility features can amount to higher costs when implemented more extensively

Building to enhanced or more universal levels of accessible design adds resident benefits but also substantially raises the per-unit costs described above. Achieving

³⁶ Ward, Jason and Schlake, Luke. (2025). The High Cost of Producing Multifamily Housing in California: Evidence and Policy Recommendations. https://www.rand.org/pubs/research_reports/RRA3743-1.html.

higher degrees of inclusive design, adding accessibility features to a greater proportion of units, and adding more accessibility features beyond the ten studied could all raise costs – by a factor of two, three, or even higher, depending on the details. This finding aligns well with the studies summarized in Appendix A, which found that various accessibility improvements could add as few as one or two tenths of a percent to per-unit construction costs or could add over 10 percent to costs, depending on the specific improvements and context.

The consultant team expects that – all else equal – requiring accessibility improvements that increase the cost of construction would raise the rents needed to break even or make a development worth building. A handful of studies demonstrate this dynamic by isolating the effect of construction cost increases and showing they raise needed rents.^{37, 38, 39} Despite construction costs affecting break-even rents, empirical literature has been conflicted on whether increases in construction costs ultimately reduce housing production in the long-term.^{40, 41} This could have a variety of reasons, including that the development ecosystem is dynamic, adaptive, and can compensate for higher input costs and still produce housing if other factors that affect development feasibility change. Such changes could include charging higher rents, shifting capital to new geographies or housing typologies, increasing public subsidy, adjusting regulations, or passively benefiting from compressed capitalization and expected return rates. In the immediate term, absent changes to the above-listed factors, the consultant team believes that increases in costs and breakeven rents would mechanistically challenge development feasibility for both market-rate and affordable housing, though perhaps not enough to stop development or shift it to later periods. This is an important consideration to balance with an impulse to impose new regulatory requirements, given the current policy emphasis on housing production in California.

³⁷ Michael D. Eriksen, Deniz Besiktepe, and Claudio Martani, "JUE Insight: The Effect of 2012–2021 Building Code Revisions on Break-Even Rents of 3-story Apartments" (working paper, SSRN, 2026), <https://ssrn.com/abstract=6776972>.

³⁸ Michael D. Eriksen and Anthony W. Orlando, "A Cost Decomposition of Break-Even Rents for New Multifamily Housing Development," *Journal of Housing Economics* 66 (2024): 102012, <https://doi.org/10.1016/j.jhe.2024.102012>.

³⁹ Michael D. Eriksen and Anthony W. Orlando, "Returns to Scale in Residential Construction: The Marginal Impact of Building Height," *Real Estate Economics* 50, no. 2 (2022): 534, <https://doi.org/10.1111/1540-6229.12357>.

⁴⁰ C. Tsuriel Somerville, "Residential Construction Costs and the Supply of New Housing: Endogeneity and Bias in Construction Cost Indexes," *Journal of Real Estate Finance and Economics* 18, no. 1 (1999): 43–62.

⁴¹ William C. Wheaton and William E. Simonton, "The Secular and Cyclic Behavior of 'True' Construction Costs," *Journal of Real Estate Research* 29, no. 1 (2007): 1–26.

The accessibility features' costs vary by housing type and project context – with affordable housing facing relatively smaller impacts and market-rate housing facing relatively higher ones

The incremental cost of building accessibility features varies for affordable and market-rate housing development for two core reasons.

First, affordable housing tends to build to higher accessibility standards than market-rate housing due to legal and contractual requirements. This means affordable housing development is generally expected to face lower marginal costs to add basic accessibility features. The opposite is true for market-rate development. Less stringent baseline accessibility requirements for market-rate development mean new accessible features amount to significant upgrades to building design and construction.

Second, affordable housing and market-rate housing rents are set based on different dynamics. Affordable-housing rents are set based on bedroom count and income level and are not incentivized to shift based on marginal adjustments to square footage. Market-rate developments function differently, needing to prioritize unit efficiency and financial return. They are exposed to shrinkage of rental rolls, market values, and financeability if square footage must ever be reallocated from rentable space to common-area space (such as for wider, more accessible corridors). This exposure creates additional indirect financial impacts for market-rate development that are not as present in affordable housing development.

Adding accessibility features during construction conveys long-term cost savings and resident benefits

Multiple architects noted that providing certain accessibility features (e.g., wider pedestrian paths, automatic doors) in excess of code requirements was already considered a design best practice, recommended as a way to optimize resident experience and add design value.

In addition, this study uncovered several ways that adding accessibility features during construction confers cost savings. For example, roll-in shower retrofits appear to be substantially more expensive than installation during initial construction – perhaps over three times as expensive. In addition, interviewees attested that features such as grab bars can reduce later accommodation requests and litigation risk. These up-front investments each save on future costs, especially in an

environment of rapid labor and material cost inflation. It may also be easier to increase a construction loan's principal upfront than to find excess capital reserves or cash flow to fund retrofits or reasonable accommodation requests when a building is operating.

Communities need both accessibility and affordability

Inclusive design offers universal shared benefits and is flexible and resilient to people's changing lives. This fact will be on clear display as California's and Marin County's population ages. More and more residents will be living with disabilities and will strongly benefit from inclusive, accessible design.

At the same time, California and Marin County face clear problems of housing unaffordability and underproduction, and some accessibility enhancements do, in reality, add another layer to construction and operating costs. Seeing this tension between affordability and accessibility, it's easy to halt the conversation at, "it's very (or too) expensive." However, the consultant team believes that the best solutions will come from moving beyond the first-order reality that affordability and accessibility are partially in tension, and instead recognizing the fact that *communities need both*. And so, the more productive question is: how can we have both?

This question is discussed further in the Recommendations section below. Suffice it to say, between zoning, development standards, building code, tax and fee policy, permitting processes, and discretionary approvals, California and Marin County have no shortage of opportunities to decrease the cost of producing housing. Many of these opportunities – and the costs they've levied on residential development – go unrecognized. For instance, a 2026 working paper found that new building code standards since 2012 raised the cost of apartment construction by nearly 10%.⁴² This was mostly due to new fire protection standards, such as requiring a paid fire watch during construction for all non-working hours for buildings exceeding 40 feet in height. Such requirements may be worthwhile, but they do not appear to receive much open scrutiny despite an estimated \$180,000 cost for that particular requirement in the study. Continuing to pursue opportunities to question and reduce costs would greatly improve the financial constraints that may discourage raising accessibility expectations for new multifamily housing.

Recommendations for Marin County

⁴² Michael D. Eriksen et al., "JUE Insight."

The consulting team recommends policymakers carefully consider the tradeoffs that the above information presents. To paraphrase a developer we interviewed: what changes make the most meaningful accessibility improvements to boost choice and inclusion for residents while still protecting development feasibility?

The consulting team recommends several guiding principles:

- Focus any new accessibility standards first on features that offer low costs and high value to residents. Furthermore, optimize the number of units covered by new standards to offer meaningful choice and flexibility for residents while avoiding incurring costs for limited benefits. In lieu of strong evidence regarding the cost-to-value ratio, offering developers a menu of accessibility upgrades to choose from (as The Kelsey currently does with the Inclusive Design Standards certification) creates flexibility and incentivizes them to optimize for cost and benefit.
- Consider providing a financial or regulatory incentive to developers to offset the cost of new standards.
- Share the **Inclusive Design Standards** with neighboring and partner jurisdictions to have as a helpful tool to inform their accessible design efforts.
- Find other ways to reduce costs and improve development feasibility (e.g., faster and more certain permitting processes, more lenient development standards), as this creates more financial room for new, more community-serving standards like accessibility upgrades.



Appendix A:

Review of Cost Studies to Date

A targeted review of the literature and industry studies found limited documented analysis quantifying the costs of accessibility features in new multi-unit housing construction in the United States. Three studies relevant to the costs of accessibility features were identified, but none provide comprehensive or recent cost breakdowns for a full range of accessibility features in multi-unit housing.

The most directly relevant U.S. study found is the *Cost of Accessible Housing* (1993), prepared for HUD by Steven Winter Associates, Inc. The study analyzes the estimated cost of compliance with the FHA guidelines and the 1986 ANSI A117.1 standards. The implementations for the ten features in this report go beyond FHA guidelines and ANSI standards, but some of the features were included in the cost analysis, as summarized below.

- Grab bar backing was, in most cases, below \$20 per bathroom.
- Removable vanity cabinets ranged from \$25 to \$68, with most estimates in the high \$40s and \$50s. This reflects the additional cost beyond standard cabinets (i.e., the brackets and installation required to make cabinets removable).
- At the time of the study, emergency alarms were not included in the cost estimate because there were no universally enforced standards, and the requirements were typically set at the local level.
- The cost of a change from 2 feet, 6 inches or 2 feet, 8 inches wide doors to 2 feet, 10 inches wide doors ranged from \$1.50 to \$5.50 per door.⁴³

Overall, the FHA guideline requirements resulted in a dwelling unit cost increase ranging from 0.06% to 0.57%, with an average of 0.29%, and a site cost increase ranging from 0 for flat sites to 8.59% for moderate to steep sites, with an average of 6.4% for sloping sites. Total project cost increases range from 0.07% to 0.85%, with an average of 0.34%. Compliance with ANSI A117.1 standards resulted in a dwelling

⁴³ Steven Winter Associates. (1993). *Cost of Accessible Housing*. Prepared for the U.S. Department of Housing and Urban Development Office of Policy Development and Research. <https://docs.huduser.gov/portal/sites/default/files/pdf/Cost-of-Accessible-Housing.pdf>. pgs.8-11.

unit cost increase ranging from 0.36% to 1.21%, with an average of 0.73%, and an average total project cost increase of 0.63%.⁴⁴

The *Rick Hansen Foundation Accessibility Certification (RHFAC) Cost Comparison Feasibility Study* assesses the cost impact of designing buildings to achieve meaningful accessibility beyond minimum code in the Canadian context. This study compares baseline building codes (Canadian National and Ontario Building Codes) with the RHFAC performance-based certification and finds that projects could achieve an RHFAC certification with minimal cost impact. The study estimates an approximately 1% increase in construction cost beyond baseline code compliance for projects achieving RHFAC Accessibility Certified Gold certification across three site types: public, commercial, and multi-unit residential.

The Canada Mortgage and Housing Corporation (CMHC) conducted a study estimating the incremental costs of including accessibility features in newly constructed modest houses. The authors examined approximately 60 accessibility features integrated into benchmark plans for modest single-unit and small multi-unit dwellings. The study found that the total cost of adding accessibility features ranged from 6% to 12% of base construction costs, depending on dwelling type and location. Most of the 60 features added for future accessibility cost less than \$500 each.

The RHFAC and CMHC studies are limited in geographic relevance and do not focus specifically on multi-unit residential development. The U.S. study focuses on the costs of standards required by FHA and ANSI, standards to which many projects are already subject, and does not include cost estimates for all the relevant features included in this report. There remains a gap in U.S.-focused cost analyses that quantify both direct and indirect costs of accessibility features in multi-unit housing. This gap underscores the need for more targeted research to inform policy and development decisions in the U.S. multi-unit housing sector.

⁴⁴ Steven Winter Associates. (1993). *Cost of Accessible Housing*. Prepared for the U.S. Department of Housing and Urban Development Office of Policy Development and Research. <https://docs.huduser.gov/portal/sites/default/files/pdf/Cost-of-Accessible-Housing.pdf>. pg.3.

Appendix B:

Aggregated Cost Estimate

Combining the study's findings for the ten primary features estimates their overall cost impact under specific conditions listed below.

- Assumed building typology: A privately developed and financed multi-unit residential building in the Bay Area in California with 50 units, an elevator, a leasing office, and an even mix of 1- and 2-bathroom units.
- Ideal construction conditions: A non-prevailing wage project with a concrete podium on a quiet, adequately sized, and otherwise uncomplicated site.

This overall cost impact is an estimate, derived from the interviews and cost research summarized in the Findings and Conclusion above, and subject to the limitations described in the Introduction section. It does not represent the full slate of potential costs that could be incurred under the varying project circumstances in which a developer might implement the features.

Feature	Estimated Cost	Assumptions from Interviews
Pedestrian Paths	\$0	Urban site, no additional concrete needed for secondary paths.
Pet and Service Animal Relief Areas	\$7,500	8' by 10' relief area with no plumbed drain, no decrease in rentable SF.
Automatic Entry Doors	\$36,000	4 automatic doors at \$9,000 EA.
Usable Corridors	\$50,000	4 stories of 100 additional corridor SF at \$125 PSF. No lost rentable SF.

Adaptable Units	\$46,875	Average of 7.5 additional SF per unit at \$125 PSF and floorplan adjustments to accommodate turning.
Grab Bars	\$8,575	Wider backing at \$50 premium per unit and 10% of all grab bars at \$135 EA (six per bathroom).
Roll In Showers	\$17,000	10% of units have roll-in showers at \$1000 premium EA, with 60% of showers receiving floor drains at \$4,000 EA.
Visible Alerts	\$19,500	25% of units at \$1,500 per unit for visible doorbell and alarm hardware and installation.
Outdoor Noise Control	\$15,000	Average of six 3' by 5' windows per unit, with each window costing a baseline of \$300 plus a 10% premium for higher STCs.
Low-VOC Materials	\$0	No material changes as California already requires low-VOC materials.
Hard cost subtotal	\$200,450	Sum of the above.
Contingency (10%)	\$20,045	e.g., Covers interest and financing costs stemming from the above expansion of construction budget
Cost per unit	\$4,410	Sum of the above divided by 50 units.

Appendix C:

Applicable Codes and Standards Text

Pedestrian Paths Widths

Federal Requirements

The ADA requires at least one accessible route from site arrival points to the accessible building entrance and at least one accessible route connecting buildings and facilities on the site. Accessible routes must comply with Section 403 (Walking Surfaces) of the 2010 ADA Standards for Accessible Design. The Fair Housing Act Design Manual requires covered apartments to have a building entrance on an accessible route.⁴⁵ The manual refers to ANSI 4.3 for specifications for accessible routes. The manual also specifies that the space required for a person using a wheelchair to make a 180-degree turn is a circle with a diameter of 60 inches (pg. 19), which is cited to be based on ANSI 4.2. These standards are listed below.

ADA 206 Accessible Routes⁴⁶

206.1 General. Accessible routes shall be provided in accordance with 206 and shall comply with Chapter 4.

206.2 Where Required. Accessible routes shall be provided where required by 206.2.

206.2.1 Site Arrival Points. At least one accessible route shall be provided within the site from accessible parking spaces and accessible passenger loading zones; public streets and sidewalks; and public transportation stops to the accessible building or facility entrance they serve.

⁴⁵ U.S. Department of Housing and Urban Development, Office of Fair Housing and Equal Opportunity & Office of Housing. (1998). Fair Housing Act Design Manual (pg.14).

⁴⁶ 2010 ADA Standards for Accessible Design, § 206 (Accessible Routes). U.S. Department of Justice. <https://www.ada.gov/law-and-regs/design-standards/2010-stds/#206-accessible-routes#section32>

ADA 403 Walking Surfaces⁴⁷

403.5.1 Clear Width. Except as provided in 403.5.2 and 403.5.3, the clear width of walking surfaces shall be 36 inches minimum.

403.5.2 Clear Width at Turn. Where the accessible route makes a 180 degree turn around an element which is less than 48 inches wide, clear width shall be 42 inches minimum approaching the turn, 48 inches minimum at the turn and 42 inches minimum leaving the turn.

403.5.3 Passing Spaces. An accessible route with a clear width less than 60 inches shall provide passing spaces at intervals of 200 feet maximum. Passing spaces shall be either: a space 60 inches minimum by 60 inches minimum; or, an intersection of two walking surfaces providing a T-shaped space complying with 304.3.2 where the base and arms of the T-shaped space extend 48 inches minimum beyond intersection.

ANSI 4.2 Space Allowances and Reach ranges (ANSI A117.1-1992)⁴⁸

4.2.3 Wheelchair Turning Space. The space required for a wheelchair to make a 180-degree turn shall be a clear space of 60 in (1525 mm) diameter minimum of a T-shaped space within a 60 in (1525 mm) minimum square with arms 36 in (915 mm) wide minimum and 60 in (1525 mm) long minimum.

ANSI 4.3. Accessible Routes (ANSI A117.1-1992)⁴⁹

4.3.2.1. Accessible routes shall consist of one or more of the following components: Walking surfaces with a slope not steeper than 1:20, marked crossings at vehicular ways, clear floor space at accessible elements, access aisles, ramps, curb ramps, and elevators.

4.3.2.2. All components of an accessible route shall comply with the applicable portions of this standard.

⁴⁷ 2010 ADA Standards for Accessible Design, § 403 (Walking Surfaces). U.S. Department of Justice. <https://www.ada.gov/law-and-regs/design-standards/2010-stds/#403-walking-surfaces#section83>

⁴⁸ ICC/ANSI A117.1-1992, § 4.2 (Space Allowances and Reach Ranges), referenced by the HUD Fair Housing Act Design Manual as an FHA safe-harbor standard. <https://codes.iccsafe.org/content/ANSIA11711992/4-accessible-elements-and-spaces>

⁴⁹ ICC/ANSI A117.1-1992, § 4.3 (Accessible Routes), referenced by the HUD Fair Housing Act Design Manual as an FHA safe-harbor standard. <https://codes.iccsafe.org/content/ANSIA11711992/4-accessible-elements-and-spaces>

4.3.3. Width. Clear width of an accessible route shall be 36 in (915 mm) minimum, except at doors (see 4.13.5). See Fig. B4.3.3(a). Clear width of the accessible route with turns around an Obstruction less than 48 in (1220 mm) wide shall have a clear space of 42 in by 48 in (1065 mm by 1220 mm) minimum. See Fig 4.3.3(b).

4.3.4 Passing Space. An accessible route with a clear width less than 60 in (1525 mm) shall provide passing spaces at intervals of 200 ft (61 m) maximum. These passing spaces shall be either a 60 in by 60 in (1525 mm by 1525 mm) minimum space, or an intersection of two corridors or walks which provide a T-shaped turning space complying with 4.2.3.

California Requirements

The CBC regulates the width of walks and sidewalks on accessible routes as follows.

CBC 11B-206 Accessible Routes⁵⁰

11B-206.2 Where Required. Accessible routes shall be provided where required by Section 11B-206.2.

11B-206.2.1 Site Arrival Points. At least one accessible route shall be provided within the site from accessible parking spaces and accessible passenger drop-off and loading zones; public streets and sidewalks; and public transportation stops to the accessible building or facility entrance they serve. Where more than one route is provided, all routes must be accessible.

11B-206.2.2. Within a Site. At least one accessible route shall connect accessible buildings, accessible facilities, accessible elements and accessible spaces that are on the same site.

CBC 11B-403 Walking Surfaces⁵¹

11B-403.3 Slope. The running slope of walking surfaces shall not be steeper than 1:20. The cross slope of walking surfaces shall not be steeper than 1:48.

⁵⁰ California Building Code (Title 24, Part 2), Chapter 11B – Accessibility to Public Buildings, Public Accommodations, Commercial Buildings and Public Housing, § 11B-206 (Accessible Routes). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11B/accessibility-to-public-buildings-public-accommodations-commercial-buildings-and#11B-206>

⁵¹ California Building Code (Title 24, Part 2), Chapter 11B – Accessibility to Public Buildings, Public Accommodations, Commercial Buildings and Public Housing, § 11B-403 (Walking Surfaces). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11B/accessibility-to-public-buildings-public-accommodations-commercial-buildings-and#11B-403>

11B-403.5 Clearances. Walking surfaces shall provide clearances complying with Section 11B-403.5.

11B-403.5.1 Clear Width. Except as provided in Sections 11B-403.5.2 and 11B-403.5.3, the clear width of walking surfaces shall be 36 inches (914 mm) minimum.

Exception #3: The clear width for sidewalks and walks shall be 48 inches (1219 mm) minimum. When, because of right-of-way restrictions, natural barriers or other existing conditions, the enforcing agency determines that compliance with the 48-inch (1219 mm) clear sidewalk width would create an unreasonable hardship, the clear width may be reduced to 36 inches (914 mm).

11B-403.5.2 Clear Width at Turn. Where the accessible route makes a 180 degree turn around an element which is less than 48 inches (1219 mm) wide, clear width shall be 42 inches (1067 mm) minimum approaching the turn, 48 inches (1219 mm) minimum at the turn and 42 inches (1067 mm) minimum leaving the turn.

11B-403.5.3 Passing Spaces. An accessible route with a clear width less than 60 inches (1524 mm) shall provide passing spaces at intervals of 200 feet (60,960 mm) maximum. Passing spaces shall be either: a space 60 inches (1524 mm) minimum by 60 inches (1524 mm) minimum; or, an intersection of two walking surfaces providing a T-shaped space complying with Section 11B-304.3.2 where the base and arms of the T-shaped space extend 48 inches (1219 mm) minimum beyond the intersection.

Marin County Requirements

The Marin County Code does not prescribe pedestrian path width standards for multi-unit housing development.

Pet and Service Animal Relief Areas

Federal Requirements

There are no federal accessibility requirements that regulate pet and service animals relief areas.

California Requirements

There are no state accessibility requirements that regulate pet and service animal relief areas.

Marin County Requirements

There are no known applicable standards in Marin County. There may be local standards regarding sewage. Some architects interviewed for this report indicated that local jurisdictions' plumbing codes may contain provisions that push pet relief areas to connect to sanitary sewer systems.

Automatic Entry Doors

Federal Requirements

The 2010 ADA Standards for Accessible Design requires all components of an accessible route to comply with Chapter 4, which includes doorways. Automatic doors are not required, but when one is provided, the following standards apply.

ADA 404 Doors, Doorways, and Gates⁵²

404.2.4 Maneuvering Clearances. Minimum maneuvering clearances at doors and gates shall comply with 404.2.4. Maneuvering clearances shall extend the full width of the doorway and the required latch side or hinge side clearance.

404.2.9 Door and Gate Opening Force. Fire doors shall have a minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open a door or gate other than fire doors shall be as follows:

- Interior hinged doors and gates: 5 pounds (22.2 N) maximum.
- Sliding or folding doors: 5 pounds (22.2 N) maximum.

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position.

The FHA Design Manual pg. 2.12 references ANSI 4.13⁵³ for usable door standards, which matches the ADA 404.2.9 standard above.

⁵² 2010 ADA Standards for Accessible Design, § 404 (Doors, Doorways, and Gates). U.S. Department of Justice. <https://www.ada.gov/law-and-reg/design-standards/2010-stds/#404-doors-doorways-and-gates#section84>

⁵³ ICC/ANSI A117.1-1992, § 4.13.11 (Door Opening Force), referenced by the HUD Fair Housing Act Design Manual as an FHA safe-harbor standard. https://codes.iccsafe.org/content/ANSIA11711992/4-accessible-elements-and-spaces#ANSIA11711992_Ch04_Sec4.13.11

California Requirements

There is no state requirement for automatic doors. However, the CBC places effort limits on doors that can be remedied by an automatic door, and the code includes specific requirements for when an automatic door is installed. The following standards apply.

CBC 11B-404 Doors, Doorways and Gates⁵⁴

11B-404.2.9 Door and Gate Opening Force. The force for pushing or pulling open a door or gate shall be as follows:

1. Interior hinged doors and gates: 5 pounds (22.2 N) maximum.
2. Sliding or folding doors: 5 pounds (22.2 N) maximum.
3. Required fire doors: the minimum opening force allowable by the appropriate administrative authority, not to exceed 15 pounds (66.7 N).
4. Exterior hinged doors: 5 pounds (22.2 N) maximum.

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position.

Marin County Requirements

The Marin County Code does not include provisions beyond the California Building Code.

Outdoor Noise Control

Federal Requirements

There are no outdoor noise control standards in ADA or FHA design standards or guidelines.

⁵⁴ California Building Code (Title 24, Part 2), Chapter 11B – Accessibility to Public Buildings, Public Accommodations, Commercial Buildings and Public Housing, § 11B-404 (Doors, Doorways and Gates). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11B/accessibility-to-public-buildings-public-accommodations-commercial-buildings-and#11B-404>

California Requirements

CBC Section 1206 provides standards for sound transmission as follows.

CBC 1206 Sound Transmission⁵⁵

1206.4 Allowable Interior Noise Levels. Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan.

Marin County Requirements

There are no Marin County standards regarding outdoor noise.

Low VOC Materials

Federal Requirements

The EPA sets VOC content limits on some building materials, such as architectural coatings.⁵⁶ However, there are no federal requirements for low- or no-VOC building materials in multifamily housing development.

California Requirements

The CBC does not regulate low- or no-VOC building materials, but the California Green Building Code (CALGreen) does, and applies to all construction in the state. CALGreen places VOC limits on various materials such as architectural coatings, sealants, and adhesives. The following CALGreen standards apply.

CALGreen 4.504 Pollutant Control⁵⁷

⁵⁵ California Building Code (Title 24, Part 2), Chapter 12 – Interior Environment, § 1206 (Sound Transmission). <https://up.codes/viewer/california/ca-building-code-2025/chapter/12/interior-environment#1206>

⁵⁶ US Environmental Protection Agency. Architectural Coatings: National Volatile Organic Compounds Emission Standards. <https://www.epa.gov/stationary-sources-air-pollution/architectural-coatings-national-volatile-organic-compounds>.

⁵⁷ California Green Building Standards Code (CALGreen), Title 24 Part 11, Chapter 4 – Residential Mandatory Measures, § 4.504 (Pollutant Control). <https://up.codes/viewer/california/ca-green-code-2025/chapter/4/residential-mandatory-measures#4.504>

4.5.04.1 Covering of Duct Openings and Protection of Mechanical Equipment

During Construction. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust and debris, which may enter the system. (See Table 4.504.1)

4.504.2 Finish Material Pollutant Control. Finish materials shall comply with this section. (See Table 4.504.2.)

4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-high Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-high Gloss VOC limit in Table 4.504.3 shall apply.

4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

Manufacturer's product specification.

1. Field verification of on-site product containers.
2. Furniture and appliances are not within the scope of CALGreen, which focuses on the building envelope and finishes. CALGreen does not regulate chemical-free environments, only low-emitting materials within defined limits.

4.504.3. Carpet Systems. All carpet installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350).

See California Department of Public Health's website for certification programs and testing labs.

<https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx>

See Table 4.504.3.

4.504.3.1 Carpet Cushion. All carpet cushion installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350).

See California Department of Public Health's website for certification programs and testing labs.

<https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx>

4.504.3.2 Carpet Adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 Resilient Flooring Systems. Where resilient flooring is installed, at least 80 percent of floor area receiving resilient flooring shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350).

See California Department of Public Health's website for certification programs and testing labs.

<https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx>

4.504.5 Composite Wood Products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.) as shown in Table 4.504.5.

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European 636 3S, and Canadian CSA O121, CSA O151, CSA O153 and CSA O325 standards.
5. Other methods acceptable to the enforcing agency.

Marin County Requirements

Marin County recently adopted a Green Building Ordinance which adopts the 2025 Green Building Standards Code (CALGreen). The VOC requirements in CALGreen are summarized above in the California Requirements.

Usable Corridors

Federal Requirements

The ADA requires at least one accessible route connecting accessible building or facility entrances with all accessible spaces and elements within the building or facility which are otherwise connected by a circulation path.

ADA 403 Walking Surfaces – see the Pedestrian Path Widths section above; the same accessible-route width standard applies to both exterior paths and interior corridors.

The FHA Design Manual

An accessible route within buildings may include corridors, doorways, floors, ramps, elevators, and lifts, and specifications for accessible routes are found in ANSI 4.3 (pg.1.6)⁵⁸. See Pedestrian Path Widths for ANSI 4.3 standards.

California Requirements

The CBC regulates interior accessible routes, which are subject to the following standards.

CBC 1119A Interior Accessible Routes⁵⁹

1119A.3 Widths. Interior accessible routes serving an occupant load of 10 or more shall not be less than 44 inches (1118 mm) in width. Interior accessible routes serving an occupant load of less than 10 shall not be less than 36 inches (914 mm) in width.

1119A.4 Interior Accessible Routes Over 200 Feet. Interior accessible routes that exceed 200 feet (60 960 mm) in length shall comply with Section 1138A.1.2

⁵⁸ U.S. Dept. of Housing and Urban Development, Fair Housing Act Design Manual (1998 rev.), pg. 1.6. <https://www.huduser.gov/portal/publications/PDF/FAIRHOUSING/fairfull.pdf>

⁵⁹ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1119A (Interior Accessible Routes). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1119A>

CBC 1138A Space Allowances and Reach Ranges⁶⁰

1138A.1.2. Width for two wheelchairs passing. The minimum width for two wheelchairs to pass is 60 inches (1524 mm). An accessible route (exterior and interior) with a clear width less than 60 inches (1524 mm) shall provide passing spaces at intervals of 200 feet (60 960 mm) maximum. Passing spaces shall be either: a space 60 inches (1524 mm) minimum by 60 inches (1524 mm) minimum; or, an intersection of two walking surfaces providing a T-shaped space complying with Section 1138A.1.3.1, where the base and arms of the T-shaped space extend 48 inches (1219 mm) minimum beyond the intersection.

Marin County Requirements

The Marin County Code does not include provisions beyond the California Building Code Chapter 11A.

Adaptable Units

Federal Requirements

Adaptable Units include three separate types of standards: accessible routes in dwelling units, reinforcement for grab bars, and removable base cabinets. ADA 809 is the current regulatory gold standard for accessible routes, requiring a route connecting every room in the unit and a wheelchair turning space in each room the route serves. Reinforcement for grab bars and knee and toe clearance under sinks are addressed in the ADA standards. These standards are listed below.

ADA 809 Residential Dwelling Units⁶¹

809.1 General. Residential dwelling units shall comply with 809. Residential dwelling units required to provide mobility features shall comply with 809.2 through 809.4. Residential dwelling units required to provide communication features shall comply with 809.5.

⁶⁰ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1138A (Space Allowances and Reach Ranges). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1138A>

⁶¹ 2010 ADA Standards for Accessible Design, § 809 (Residential Dwelling Units). U.S. Department of Justice. <https://www.ada.gov/law-and-regs/design-standards/2010-stds/#809-residential-dwelling-units#section128>

809.2 Accessible Routes. Accessible routes complying with Chapter 4 shall be provided within residential dwelling units in accordance with 809.2.

EXCEPTION: Accessible routes shall not be required to or within unfinished attics or unfinished basements.

809.2.1 Location. At least one accessible route shall connect all spaces and elements which are a part of the residential dwelling unit. Where only one accessible route is provided, it shall not pass through bathrooms, closets, or similar spaces.

809.2.2 Turning Space. All rooms served by an accessible route shall provide a turning space complying with 2010 ADA Design Standards Section 304.

EXCEPTION: Turning space shall not be required in exterior spaces 30 inches (760 mm) maximum in depth or width.

ADA 304 Turning Space⁶²

304.1 General. Turning space shall comply with 304.

304.2 Floor or Ground Surfaces. Floor or ground surfaces of a turning space shall comply with 302. Changes in level are not permitted.

EXCEPTION: Slopes not steeper than 1:48 shall be permitted.

304.3 Size. Turning space shall comply with 304.3.1 or 304.3.2.

304.3.1 Circular Space. The turning space shall be a space of 60 inches (1525 mm) diameter minimum. The space shall be permitted to include knee and toe clearance complying with 306.

304.3.2 T-Shaped Space. The turning space shall be a T-shaped space within a 60 inch (1525 mm) square minimum with arms and base 36 inches (915 mm) wide minimum. Each arm of the T shall be clear of obstructions 12 inches (305 mm) minimum in each direction and the base shall be clear of obstructions 24 inches (610 mm) minimum. The space shall be permitted to include knee and toe clearance complying with 306 only at the end of either the base or one arm.

304.4 Door Swing. Doors shall be permitted to swing into turning spaces.

⁶² 2010 ADA Standards for Accessible Design, § 304 (Turning Space). U.S. Department of Justice. <https://www.ada.gov/law-and-regs/design-standards/2010-stds/#304-turning-space#section74>

FHA Design Manual (pgs. 4.3-4.4)⁶³

The FHA Design Manual specifies that an accessible route must be provided into and throughout the covered dwelling unit. The in-unit accessible route must be sufficiently wide and lacking in abrupt changes in level (pg. 4.3). The width of the accessible route must be 36-inches (pg. 4.4). Within single-story dwelling units, the maximum vertical floor level change is ¼ inch, except when a tapered threshold is used, the maximum height is ½ inch (pg. 4.4).

Reinforcement for Grab Bars

ADA standards require reinforcement for grab bars. See Grab Bar section below for full requirements.

Removable Cabinets

ADA standards do not require cabinets under all bathroom or kitchen sinks to be removable and focus on accessible knee and toe clearance at sinks when they are required to be accessible (ADA 305⁶⁴ and 306⁶⁵).

California Requirements

The CBC requires covered multifamily units to provide continuous accessible circulation, adaptable kitchen and bathroom cabinetry, and for bathtubs, showers, and water closets, reinforced walls for future grab bar installation. The relevant accessible circulation, cabinet, maneuvering space, countertop, and grab bar reinforcement standards are provided here.

CBC 1119A Interior Accessible Routes⁶⁶

1119A.1 General. When a building or portion of a building is required to be accessible or adaptable, an accessible route shall be provided to all portions of the building, accessible building entrances and to covered multifamily dwelling units. The

⁶³ U.S. Dept. of Housing and Urban Development, Fair Housing Act Design Manual (1998 rev.), pgs. 4.3–4.4. <https://www.huduser.gov/portal/publications/PDF/FAIRHOUSING/fairfull.pdf>

⁶⁴ 2010 ADA Standards for Accessible Design, § 305 (Clear Floor or Ground Space). U.S. Department of Justice. <https://www.ada.gov/law-and-reg/design-standards/2010-stds/#305-clear-floor-or-ground-space#section75>

⁶⁵ 2010 ADA Standards for Accessible Design, § 306 (Knee and Two Clearance). U.S. Department of Justice. <https://www.ada.gov/law-and-reg/design-standards/2010-stds/#306-knee-and-toe-clearance#section76>

⁶⁶ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1119A (Interior Accessible Routes). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1119A>

accessible route shall, to the maximum extent feasible, coincide with the route for the general public and other building residents. Accessible routes shall not pass through kitchens, storage rooms, restrooms, closets or other spaces used for similar purposes except within an individual dwelling unit.

Interior accessible routes shall be provided as follows:

1. Where more than one route of travel is provided, all routes shall be accessible.
2. At least one accessible route shall connect accessible building or facility entrances with all accessible spaces, elements and covered multifamily dwelling units.
3. An accessible route shall connect at least one accessible primary entrance of each covered multifamily dwelling unit with interior and exterior spaces and facilities that serve the unit.
4. Where elevators are provided for vertical access, all elevators shall be accessible.

1119A.3 Widths. Interior accessible routes serving an occupant load of 10 or more shall not be less than 44 inches (1118 mm) in width. Interior accessible routes serving an occupant load of less than 10 shall not be less than 36 inches (914 mm) in width.

If a person in a wheelchair must make a turn around a corner or an obstruction, the minimum clear width of the accessible route shall be as specified in Section 1138A.1.5.

CBC 1121A Changes in Level on Accessible Routes⁶⁷

1121A.1 Changes in Level Not Exceeding 1/2 Inch. Abrupt changes in level along any accessible route shall not exceed 1/2 inch (12.7 mm). When changes in level do occur, they shall be beveled with a slope no greater than 1 unit vertical in 2 units horizontal (50-percent slope). Changes in level not exceeding 1/4 inch (6.35 mm) may be vertical.

1121A.2 Changes Greater Than 1/2 Inch. Changes in level greater than 1/2 inch (12.7 mm) shall be made by means of a sloped surface not greater than 1 unit vertical in 20 units horizontal (5-percent slope), or a curb ramp, ramp, elevator or platform (wheelchair) lift. Stairs shall not be part of an accessible route. When stairs are

⁶⁷ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1121A (Changes in Level on Accessible Routes). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1121A>

located along or adjacent to an accessible route they shall comply with Section 1123A for interior stairways.

CBC 1133A Kitchens⁶⁸

1133A.3 Removable Base Cabinets. Sinks and work surfaces required by Section 1133A.4 shall be provided with knee and toe space complying with Section 1133A.7. Base cabinets (including toeboard and shelving) directly under kitchen sinks and work surfaces shall be removable without the use of specialized tools or specialized knowledge in order to provide knee and toe space. The finish floor beneath kitchen sinks and work surfaces shall be extended to the wall.

1133A.4.1 Repositionable Countertops. Repositionable countertops shall be provided in a minimum of 5 percent of the covered multifamily dwelling units. Repositionable countertops shall comply with the following:

1. Sinks and work surfaces required by Section 1133A.4 shall be designed to enable repositioning to a minimum height of 28 inches (711 mm).
2. Base cabinets directly under sinks and work surfaces shall be removable as required in Section 1133A.3.
3. The sides of adjacent cabinets and the back wall, which may become exposed to moisture or food handling when a countertop is lowered, shall be constructed of durable, nonabsorbent materials appropriate for such uses.
4. Finished flooring shall be extended to the wall beneath the sink and work surface.

1133A.7 Knee and Toe Space. Knee and toe space, when required by Section 1133A, shall comply with Section 1138A.2 and the following:

1. The knee and toe space shall be clear and unobstructed, or removable base cabinets in compliance with Section 1133A.3 shall be provided.
2. The knee and toe space shall be 30 inches (762 mm) wide minimum, centered on the sink, countertop or appliance.
3. A clear floor space shall not extend into the knee and toe space more than 19 inches (483 mm).

⁶⁸ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1133A (Kitchens). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1133A>

CBC 1134A Bathing and Toilet Facilities⁶⁹

1134A.1 General. All bathrooms, bathing and toilet facilities within covered multifamily dwelling units shall comply with this section.

1134A.4 Sufficient Maneuvering Space. Bathing and toilet facilities required to be adaptable shall provide sufficient maneuvering space for a person using a wheelchair or other mobility aid to enter and close the door, use the fixtures, reopen the door and exit.

Where the door swings into the bathroom or powder room, there shall be a clear maneuvering space outside the swing of the door of at least 30 inches by 48 inches (762 mm by 1219 mm) within the room. The clear maneuvering space shall allow the user to position a wheelchair or other mobility aid clear of the path of the door as it is closed and to permit use of fixtures.

Doors may swing into the required clear space at any fixture when a clear maneuvering space is provided outside the swing arc of the door so it can be closed.

Maneuvering spaces may include any knee space or toe space available below bathroom fixtures.

1134A.5 Bathtubs. Bathtubs required to be accessible shall comply with this section.

1. Floor space. There shall be a minimum clear floor space 48 inches parallel by 30 inches perpendicular (1219 mm by 762 mm) to the side of a bathtub or bathtub-shower combination to provide for the maneuvering of a wheelchair and transfer to and from the bathing facilities. The controls shall be on the wall at the foot of the bathtub. The edge of the clear floor space shall be flush with the control wall surface. The area under a lavatory, located at the control end of the tub, may be included in the clear floor space provided the lavatory is 19 inches (483 mm) maximum deep, and the knee and toe space comply with Section 1134A.8. Cabinets under lavatories and toilets shall not encroach into the clear floor space.
2. Reinforced walls for grab bars. A bathtub installed without surrounding walls shall provide reinforced areas for the installation of floor-mounted grab bars.

⁶⁹ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1134A (Bathing and Toilet Facilities). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1134A>

Where a bathtub is installed with surrounding walls, grab bar reinforcement shall be located on each end of the bathtub, 32 inches to 38 inches (813 mm to 965 mm) above the floor, extending a minimum of 24 inches (610 mm) from the front edge of the bathtub toward the back wall of the bathtub. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height. (See Figure 11A-9G.)

Grab bar reinforcement shall be installed on the back wall of the bathtub a maximum of 6 inches (152.4 mm) above the bathtub rim extending upward to at least 38 inches (965 mm) above the floor. Grab bar backing shall be installed horizontally to permit the installation of a 48-inch (1219 mm) grab bar with each end a maximum of 6 inches (152.4 mm) from the end walls of the bathtub. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

3. Bathtub controls. Faucet controls and operation mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist.

The force required to activate controls shall be no greater than 5 pounds (22.2 N). Lever operated, push type and electronically controlled mechanisms are examples of acceptable designs.

4. Shower unit. A shower spray unit is not required in bathtubs.

5. Bathtub enclosures. Doors and panels of bathtub enclosures shall be substantially constructed from approved, shatter-resistant materials. Hinged doors shall open outward. Glazing used in doors and panels of bathtub enclosures shall be fully tempered, laminated safety glass or approved plastic. When glass is used, it shall have minimum thickness of not less than 1/8 inch (3.17 mm) when fully tempered, or 1/4 inch (6.35 mm) when laminated, and shall pass the test requirements of this part, Chapter 24, Glass and Glazing. Plastics used in doors and panels of bathtub enclosures shall be of a shatter-resistant type.

1134A.6 Showers. Showers required to be accessible shall comply with this section.

1. Size. When one or more shower stalls are provided within the same dwelling units, at least one shower stall comply with one of the following requirements.
 - 1.1. The shower stall shall measure at least 42 inches wide by 48 inches deep (1067 mm by 1219 mm) with an entrance opening of at least 36 inches (914 mm); or
 - 1.2. The shower stall shall measure at least 30 inches deep by 60 inches wide (762 mm by 1524 mm) with an entrance opening of at least 60

inches (1524 mm). A water closet may project a maximum of 12 inches (305 mm) into the opening, provided that a minimum of 36 inches (914 mm) clear space is maintained between the water closet and the shower wall as illustrated in Figure 11A-9L; or

- 1.3. Other shower stall configurations shall measure at least 36 inches deep by 60 inches wide (914 mm by 1524 mm) with an entrance opening of at least 36 inches (914 mm) when a wall is installed on the opening side.
2. Slope. The maximum slope of the shower floor shall be 1/2 inch (12.7 mm) per foot in any direction and shall slope to a drain. The floor surfaces shall be of Carborundum or grit-faced tile or of material providing equivalent slip resistance.
3. Floor space. A clear maneuvering space at least 30 inches in width by 48 inches in length (762 mm by 1219 mm) shall be located outside the shower, flush and parallel to the control wall.
4. Reinforced walls for grab bars. Grab bar reinforcement shall be installed continuous in the walls of showers 32 inches to 38 inches (813 mm to 965 mm) above the floor. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

Glass-walled shower stalls shall provide reinforcement for installation of floor-mounted or ceiling-mounted grab bars.

1134A.7 Water Closets. Water closets in bathrooms or powder rooms required to be accessible shall comply with this section.

1. Floor space and location. The minimum floor space provided at a water closet shall be 48 inches (1219 mm) in clear width. The clear floor space shall extend past the front edge of the water closet at least 36 inches (914 mm). See Figure 11A-9M.

Exception: The 48-inch (1219 mm) minimum clear width may be reduced to 36 inches (914 mm) for lavatories, cabinets, wing walls or privacy walls located immediately adjacent to a water closet which extend no more than 24 inches (610 mm) in depth.

Water closets shall be located within bathrooms in a manner that permits a grab bar to be installed on at least one side of the fixture. The centerline of the water closet shall be 17 inches (432 mm) minimum to 18 inches (457

mm) maximum from a grab bar wall or partition. In locations where water closets are adjacent to non-grab bar walls, vanities, lavatories or bathtubs, the centerline of the fixture shall be a minimum of 18 inches (457 mm) from the obstacle.

2. Reinforced walls for grab bars. Where the water closet is not placed adjacent to a side wall capable of accommodating a grab bar, the bathroom shall have provisions for installation of floor-mounted, foldaway or similar alternative grab bars.

Where the water closet is placed adjacent to a side wall, reinforcement shall be installed on both sides or one side and the back. If reinforcement is installed at the back, it shall be installed between 32 inches (813 mm) and 38 inches (965 mm) above the floor. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height. The backing shall be a minimum of 40 inches (1016 mm) in length.

3. Reinforcement installed at the side of the water closet shall be installed 32 inches to 38 inches (813 mm to 965 mm) above the floor. The reinforcement shall be installed a maximum of 12 inches (305 mm) from the rear wall and shall extend a minimum of 26 inches (660 mm) in front of the water closet. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

1134A.8 Lavatories, Vanities, Mirrors and Towel Fixtures. Bathrooms or powder rooms required to be accessible shall have at least one accessible lavatory. Where mirrors and towel fixtures are provided, at least one of each shall be accessible.

1. Location. Vanities and lavatories shall be installed with the centerline of the fixture a minimum of 18 inches (457 mm) horizontally from an adjoining wall or fixture to allow for forward approach. When parallel approach is provided, lavatories shall be installed with the centerline of the fixture a minimum of 24 inches (610 mm) horizontally from an adjoining wall or fixture. The top of the fixture rim shall be a maximum of 34 inches (864 mm) above the finished floor.
2. Floor space. A clear maneuvering space at least 30 inches by 48 inches (762 mm by 1219 mm) shall be provided at lavatories and shall be centered on the lavatory.

3. Cabinets. Cabinets under lavatories are acceptable provided the bathroom has space to allow a parallel approach by a person in a wheelchair and the lavatory cabinets are designed with adaptable knee and toe space.
4. Knee and toe space. Knee and toe space shall be provided by one of the following:
 - 4.1. The space beneath the lavatory shall be left clear and unobstructed;
 - 4.2. Any cabinet beneath the lavatory shall be removable without the use of specialized knowledge or specialized tools; or
 - 4.3. Doors to the cabinet beneath the lavatory shall be removable or openable to provide the required unobstructed knee and toe space.

The knee and toe space shall be centered on the fixture, and shall comply with Section 1138A.2. The clear floor space required by Item 2 shall not extend into the knee and toe space more than 19 inches (483 mm). (See Figure 11A-9D.)

5. Finished floor. The finished floor beneath the lavatory shall be extended to the wall.

Marin County Requirements

The Marin County Code does not include provisions beyond the California Building Code Chapter 11A.

Visible Alerts

Federal Requirements

ADA standards focus on public and common space alarm systems, but provide standards for two-way communication systems and communication features in residential units. For HUD 504 properties and public residential facilities, at least 2% of total units must provide communication features compliant with ADA Section 809.5. These standards are listed below.

ADA 702 Fire Alarm Systems⁷⁰

702.1. General. Fire alarm systems shall have permanently installed audible and visible alarms complying with NFPA 72 (1999 or 2002 edition) (incorporated by reference, see “Referenced Standards” in Chapter 1), except that the maximum allowable sound level of audible notification appliances complying with section 4-3.2.1 of NFPA 72 (1999 edition) shall have a sound level no more than 110 dB at the minimum hearing distance from the audible appliance. In addition, alarms in guest rooms required to provide communication features shall comply with sections 4-3 and 4-4 of NFPA 72 (1999 edition) or sections 7.4 and 7.5 of NFPA 72 (2002 edition).

ADA 708 Two-Way Communication Systems⁷¹

708.4 Residential Dwelling Unit Communication Systems. Communications systems between a residential dwelling unit and a site, building, or floor entrance shall comply with 708.4.

708.4.1 Common Use or Public Use System Interface. The common use or public use system interface shall include the capability of supporting voice and TTY communication with the residential dwelling unit interface.

708.4.2 Residential Dwelling Unit Interface. The residential dwelling unit system interface shall include a telephone jack capable of supporting voice and TTY communication with the common use or public use system interface.

809 Residential Dwelling Units⁷²

809.5 Residential Dwelling Units with Communication Features. Residential dwelling units required to provide communication features shall comply with 809.5.

809.5.1 Building Fire Alarm System. Where a building fire alarm system is provided, the system wiring shall be extended to a point within the residential dwelling unit in the vicinity of the residential dwelling unit smoke detection system.

⁷⁰ 2010 ADA Standards for Accessible Design, § 702 (Fire Alarm Systems). U.S. Department of Justice. <https://www.ada.gov/law-and-regs/design-standards/2010-stds/#702-fire-alarm-systems#section112>

⁷¹ 2010 ADA Standards for Accessible Design, § 708 (Two-Way Communication Systems). U.S. Department of Justice. <https://www.ada.gov/law-and-regs/design-standards/2010-stds/#708-two-way-communication-systems#section118>

⁷² 2010 ADA Standards for Accessible Design, § 305 (Clear Floor or Ground Space). U.S. Department of Justice. <https://www.ada.gov/law-and-regs/design-standards/2010-stds/#809-residential-dwelling-units#section128>

809.5.1.1 Alarm Appliances. Where alarm appliances are provided within a residential dwelling unit as part of the building fire alarm system, they shall comply with 702.

809.5.1.2 Activation. All visible alarm appliances provided within the residential dwelling unit for building fire alarm notification shall be activated upon activation of the building fire alarm in the portion of the building containing the residential dwelling unit.

809.5.2 Residential Dwelling Unit Smoke Detection System. Residential dwelling unit smoke detection systems shall comply with NFPA 72 (1999 or 2002 edition) (incorporated by reference, see “Referenced Standards” in Chapter 1).

809.5.2.1 Activation. All visible alarm appliances provided within the residential dwelling unit for smoke detection notification shall be activated upon smoke detection.

809.5.3 Interconnection. The same visible alarm appliances shall be permitted to provide notification of residential dwelling unit smoke detection and building fire alarm activation.

809.5.4 Prohibited Use. Visible alarm appliances used to indicate residential dwelling unit smoke detection or building fire alarm activation shall not be used for any other purpose within the residential dwelling unit.

809.5.5 Residential Dwelling Unit Primary Entrance. Communication features shall be provided at the residential dwelling unit primary entrance complying with 809.5.5.

809.5.5.1 Notification. A hard-wired electric doorbell shall be provided. A button or switch shall be provided outside the residential dwelling unit primary entrance. Activation of the button or switch shall initiate an audible tone and visible signal within the residential dwelling unit. Where visible doorbell signals are located in sleeping areas, they shall have controls to deactivate the signal.

809.5.5.2 Identification. A means for visually identifying a visitor without opening the residential dwelling unit entry door shall be provided and shall allow for a minimum 180 degree range of view.

809.5.6 Site, Building, or Floor Entrance. Where a system, including a closed-circuit system, permitting voice communication between a visitor and the occupant of the residential dwelling unit is provided, the system shall comply with 708.4.

California Requirements

The CBC Chapter 11A (Housing Accessibility) includes a requirement for door signal devices, but does not include provisions for fire, smoke, and carbon monoxide warnings. Private development not subject to the ADA or HUD Section 504 would need only comply with Chapter 11A for door signal devices, and Chapter 9 for Fire Protection and Life Safety Systems. Below are the relevant standards.

CBC 1132A Doors⁷³

1132A.10 Door Signal Devices. Every primary entrance to a covered multifamily dwelling unit shall be provided with a door buzzer, bell, chime or equivalent. The activating mechanism shall be mounted a maximum of 48 inches (1219 mm) above the floor and connected to permanent wiring.

CBC 907 Fire Alarm and Detection Systems⁷⁴

907.2.9.1 Manual Fire Alarm System. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies where any of the following conditions apply:

1. Any dwelling unit or sleeping unit is located three or more stories above the lowest level of exit discharge.
2. Any dwelling unit or sleeping unit is located more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit.
3. The building contains more than 16 dwelling units or sleeping units.
4. Congregate residences with more than 16 occupants.

907.2.11.2. Groups R-2, R-2.1, R-2.2, R-3, R-3.1 and R-4. Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-2.1, R-2.2, R-3, R-3.1 and R-4 regardless of occupant load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.

⁷³ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1132A (Doors). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1132A>

⁷⁴ California Building Code (Title 24, Part 2), Chapter 9 – Fire Protection and Life Safety Systems, § 907 (Fire Alarm and Detection Systems). <https://up.codes/viewer/california/ca-building-code-2025/chapter/9/fire-protection-and-life-safety-systems#907>

2. In each room used for sleeping purposes.
3. In each story within a dwelling unit, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. In a Group R-3.1 occupancies, in addition to the above, smoke alarms shall be provided throughout the habitable areas of the dwelling unit except kitchens.

907.5 Occupant Notification. Occupant notification by fire alarms shall be in accordance with Sections 907.5.1 through 907.5.2.5. Occupant notification by smoke alarms in Group R-1 and R-2 occupancies shall comply with Section 907.5.2.1.3.2.

907.5.2.1 Audible Alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

907.5.2.1.3.1 Fire Alarm System Audible Signal. In sleeping rooms of Group R-1, R-2 and I-1 occupancies, the audible alarm signal activated by a fire alarm system shall be a 520-Hz low-frequency signal complying with NFPA 72.

907.5.2.1.3.2. Smoke Alarm Signal in Sleeping Rooms. In sleeping rooms of Group R-1, R-2 and I-1 occupancies that are required by Section 907.2.8 or 907.2.9 to have a fire alarm system, the audible alarm signal activated by single- or multiple-station smoke alarms in the dwelling unit or sleeping unit shall be a 520-Hz signal complying with NFPA 72. Where a sleeping room smoke alarm is unable to produce a 520-Hz signal, the 520-Hz alarm signal shall be provided by a listed notification appliance or a smoke detector with an integral 520-Hz sounder.

907.5.2.3. Visible Alarms. Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through 907.5.2.3.4.

907.5.2.3.1. Public Use Areas and Common Use Areas. Visible alarm notification appliances shall be provided in public use areas and common use areas, including but not limited to:

1. Band rooms
2. Classrooms

3. Corridors
4. Gymnasiums
5. Lobbies
6. Meeting and conference rooms
7. Multipurpose rooms
8. Music practice rooms
9. Occupational shops
10. Occupied rooms where ambient noise impairs hearing of the fire alarm
11. Sanitary facilities including restrooms, bathrooms and shower rooms.
12. Shared office rooms used by two or more persons.
13. Normally occupied room(s) used by two or more persons such as mother's room, phone room, quiet room, wellness room, etc.
14. Normally occupied storage room/area.
15. Exam rooms in medical office buildings.

907.5.2.3.3. Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, each story that contains dwelling units and sleeping units shall be provided with the capability to support future visible alarm notification appliances in accordance with NFPA 72. Such capability shall accommodate wired or wireless equipment.

907.5.2.3.3.1. Wired Equipment. Where wired equipment is used to comply with the future capability required by Section 907.5.2.3.3, the system shall include one of the following capabilities:

1. The replacement of audible appliances with combination audible/visible appliances or additional visible notification appliances.
2. The future extension of the existing wiring from the unit smoke alarm locations to required locations for visible appliances.
3. For wired equipment, the fire alarm power supply and circuits shall have not less than 5-percent excess capacity to accommodate the future addition of visible alarm notification appliances, and a single access point to such circuits shall be available on every story. Such circuits shall not be required to be

extended beyond a single access point on a story. The fire alarm system shop drawings required by Section 907.1.2 shall include the power supply and circuit documentation to accommodate the future addition of visible notification appliances.

907.6 Installation and Monitoring. A fire alarm system shall be installed and monitored in accordance with Sections 907.6.1 through 907.6.6.4 and NFPA 72.

CBC 915 Carbon Monoxide (CO) Detection⁷⁵

915.1 General. Carbon monoxide (CO) detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.7. [Not adopted by HCD] Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the California Fire Code.

Pursuant to Health and Safety Code Section 17926, carbon monoxide detection shall be installed in all existing Group R buildings as required in Section 915.

915.1.1. Where Required. Carbon monoxide detection shall be installed in the locations specified in Section 915.2 where any of the following conditions exist.

1. In buildings that contain a CO source.
2. In buildings that contain or are supplied by a CO-producing forced-air furnace.
3. In buildings with attached private garages.
4. In buildings that have a CO-producing vehicle that is used within the building.

915.2 Locations. Carbon monoxide detection shall be installed in accordance with the manufacturer's published instructions in the locations specified in Sections 915.2.1 through 915.2.3.

915.2.1. Dwelling Units. Carbon monoxide detection shall be installed in dwelling units in the following locations:

1. Outside of each separate sleeping area in the immediate vicinity of the bedrooms.

⁷⁵ California Building Code (Title 24, Part 2), Chapter 9 – Fire Protection and Life Safety Systems, § 915 (Carbon Monoxide Detection). <https://up.codes/viewer/california/ca-building-code-2025/chapter/9/fire-protection-and-life-safety-systems#915>

2. On every occupiable level of a dwelling unit, including basements.
3. Where a CO source is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

915.2.2. Sleeping Units. Carbon monoxide detection shall be installed in sleeping units. Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a CO source and is not served by a CO-producing forced-air furnace.

915.3 Carbon Monoxide Detection. Carbon monoxide detection required by Sections 915.1 through 915.2.3 shall be provided by carbon monoxide alarms complying with Section 915.4 or carbon monoxide detection systems complying with Section 915.5.

915.3.1. Alarm Limitations. Carbon monoxide alarms shall only be installed in dwelling units and in sleeping units. They shall not be installed in locations where the code requires carbon monoxide detectors to be used.

915.3.2. Fire Alarm System Required. New buildings that are required by Section 907.2 to have a fire alarm system and by Section 915.2 to have carbon monoxide detectors shall be connected to the fire alarm system in accordance with NFPA 72.

915.5. Carbon Monoxide Detection Systems. Carbon monoxide detections shall be an acceptable alternative to carbon monoxide alarms and shall comply with Sections 915.5.1 through 915.5.3.

915.5.4 Occupant Notification. Activation of a carbon monoxide detector shall annunciate at the control unit and shall initiate audible and visible alarm notification throughout the building.

915.7 Visible Alarms. In buildings containing covered multifamily dwellings as defined in Chapter 2, all required carbon monoxide alarms shall be equipped with the capability to support visible alarm notification in accordance with NFPA 72

Marin County Requirements

The Marin County Code does not include provisions beyond the California Building Code Chapter 9.

Roll-in Showers

Federal Requirements

ADA shower compartment requirements would only apply in restrooms open to the public, but the standards include dimensional requirements for roll-in showers. A roll-in shower is one way to meet accessibility but not the only way. The shower compartment standards are as follows.

608 Shower compartments⁷⁶

608.1 General. Shower compartments shall comply with 608.

608.2 Size and Clearances for Shower Compartments. Shower compartments shall have sizes and clearances complying with 608.2.

608.2.1. Transfer Type Shower Compartments. Transfer type shower compartments shall be 36 inches (915 mm) by 36 inches (915 mm) clear inside dimensions measured at the center points of opposing sides and shall have a 36 inch (915 mm) wide minimum entry on the face of the shower compartment. Clearance of 36 inches (915 mm) wide minimum by 48 inches (1220 mm) long minimum measured from the control wall shall be provided.

608.2.2. Standard Roll-In Type Shower Compartments. Standard roll-in type shower compartments shall be 30 inches (760 mm) wide minimum by 60 inches (1525 mm) deep minimum clear inside dimensions measured at center points of opposing sides and shall have a 60 inches (1525 mm) wide minimum entry on the face of the shower compartment.

608.2.2.1 Clearance. A 30 inch (760 mm) wide minimum by 60 inch (1525 mm) long minimum clearance shall be provided adjacent to the open face of the shower compartment.

608.2.3 Alternate Roll-In Type Shower Compartments. Alternate roll-in type shower compartments shall be 36 inches (915 mm) wide and 60 inches (1525 mm) deep minimum clear inside dimensions measured at center points of opposing sides.

⁷⁶ 2010 ADA Standards for Accessible Design, § 608 (Shower Compartments).
<https://www.ada.gov/law-and-regs/design-standards/2010-stds/#608-shower-compartments#section105>

A 36 inch (915 mm) wide minimum entry shall be provided at one end of the long side of the compartment.

FHA Design Manual (pg. 7.58)⁷⁷

The FHA Design Manual does not require roll-in showers, but it does set a minimum stall size for the scenario where a shower is a unit's only bathing fixture. When a stall shower is the only bathing fixture in the covered dwelling unit it must be at least 36 inches x 36 inches in size.

California Requirements

Roll-in showers are not required by the CBC, but for accessible units that are required to have mobility features (those subject to HUD Section 504 or the ADA's definition of public facilities), they are one type of shower that can comply. Showers have to meet size requirements as follows.

1134A.6 Showers (Dwelling Unit Shower Size)⁷⁸

1134A.6 Showers. Shower compartments required to be accessible shall comply with this section.

1. Size. When one or more shower stalls are provided within the same dwelling units, at least one shower stall comply with one of the following requirements.
 - 1.1. The shower stall shall measure at least 42 inches wide by 48 inches deep (1067 mm by 1219 mm) with an entrance opening of at least 36 inches (914 mm); or
 - 1.2. The shower stall shall measure at least 30 inches deep by 60 inches wide (762 mm by 1524 mm) with an entrance opening of at least 60 inches (1524 mm). A water closet may project a maximum of 12 inches (305 mm) into the opening, provided that a minimum of 36 inches (914 mm) clear space is maintained between the water closet and the shower wall as illustrated in Figure 11A-9L; or

⁷⁷ U.S. Dept. of Housing and Urban Development, Fair Housing Act Design Manual (1998 rev.), pg. 7.58. <https://www.huduser.gov/portal/publications/PDF/FAIRHOUSING/fairfull.pdf>

⁷⁸ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1134A.6 (Showers). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1134A.6>

- 1.3. Other shower stall configurations shall measure at least 36 inches deep by 60 inches wide (914 mm by 1524 mm) with an entrance opening of at least 36 inches (914 mm) when a wall is installed on the opening side.
2. Slope. The maximum slope of the shower floor shall be 1/2 inch (12.7 mm) per foot in any direction and shall slope to a drain. The floor surfaces shall be of Carborundum or grit-faced tile or of material providing equivalent slip resistance.
3. Floor space. A clear maneuvering space at least 30 inches in width by 48 inches in length (762 mm by 1219 mm) shall be located outside the shower, flush and parallel to the control wall.
4. Reinforced walls for grab bars. Grab bar reinforcement shall be installed continuous in the walls of showers 32 inches to 38 inches (813 mm to 965 mm) above the floor. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

Glass-walled shower stalls shall provide reinforcement for installation of floor-mounted or ceiling-mounted grab bars.

5. Thresholds. When a threshold is used, it shall be a maximum of 2 inches (50.8 mm) in height and have a beveled or sloped angle not exceeding 1 unit vertical in 2 units horizontal (26.6 degrees from the horizontal). Thresholds 1/2 inch (12.7 mm) or less in height may have a beveled or sloped angle not exceeding 1 unit vertical in 1 unit horizontal (45 degrees from the horizontal).
6. Shower controls. Faucet controls and operation mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to activate controls shall be no greater than 5 pounds (22.2 N). Lever operated, push-type and electronically controlled mechanisms are examples of acceptable designs.
7. Shower enclosures. Doors and panels of shower enclosures shall be substantially constructed from approved, shatter-resistant materials. Hinged shower doors shall open outward. Glazing used in doors and panels of shower enclosures shall be fully tempered, laminated safety glass or approved plastic. When glass is used, it shall have minimum thickness of not less than 1/8 inch (3.17 mm) when fully tempered, or 1/4 inch (6.35 mm) when laminated, and shall pass the test requirements of this part, Chapter 24, Glass

and Glazing. Plastics used in doors and panels of shower enclosures shall be of a shatter-resistant type.

Marin County Requirements

The Marin County Code does not include provisions for roll-in showers.

Grab Bars

Federal Requirements

The FHA requires reinforcement in bathroom walls to permit later installation of grab bars around the toilet, tub, shower stall, and shower seat (FHA Design Manual pg. 6.3). The manual sets a minimum reinforcement size of 6 inches wide by 24 inches long behind and beside toilets, though it recommends exceeding this minimum (pgs. 6.3-6.5). At bathtubs and showers, reinforcement is required only in solid-construction walls (not glass shower walls) and must run the full width of the relevant wall(s) at grab-bar mounting height, generally 33 inches to 36 inches above the floor (pgs. 6.8-6.9, 6.12-6.13).

California Requirements

The CBC requires grab bars in public and common areas and residential units required to be accessible or have mobility features. For private residential units, except those required to be fully accessible, the CBC, like the FHA, only requires reinforcement of walls to allow for future installation of grab bars. The following standards apply.

CBC 1134A Bathing and Toilet Facilities – Reinforcement for Grab Bars⁷⁹

1134A.5 Bathtubs, Item 2 – Reinforced walls for grab bars. A bathtub installed without surrounding walls shall provide reinforced areas for the installation of floor-mounted grab bars. Where a bathtub is installed with surrounding walls, grab bar reinforcement shall be located on each end of the bathtub, 32 inches to 38 inches (813 mm to 965 mm) above the floor, extending a minimum of 24 inches (610 mm) from the front edge of the bathtub toward the back wall of the bathtub. The grab bar

⁷⁹ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1134A.5–.7 (Reinforced Walls for Grab Bars). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1134A>

reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height. (See Figure 11A-9G.) Grab bar reinforcement shall be installed on the back wall of the bathtub a maximum of 6 inches (152.4 mm) above the bathtub rim extending upward to at least 38 inches (965 mm) above the floor. Grab bar backing shall be installed horizontally to permit the installation of a 48-inch (1219 mm) grab bar with each end a maximum of 6 inches (152.4 mm) from the end walls of the bathtub. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

1134A.6 Showers, Item 4 – Reinforced walls for grab bars. Grab bar reinforcement shall be installed continuous in the walls of showers 32 inches to 38 inches (813 mm to 965 mm) above the floor. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height. Glass-walled shower stalls shall provide reinforcement for installation of floor-mounted or ceiling-mounted grab bars.

1134A.7 Water Closets, Item 2- Reinforced walls for grab bars. Where the water closet is not placed adjacent to a side wall capable of accommodating a grab bar, the bathroom shall have provisions for installation of floor-mounted, foldaway or similar alternative grab bars. Where the water closet is placed adjacent to a side wall, reinforcement shall be installed on both sides or one side and the back. If reinforcement is installed at the back, it shall be installed between 32 inches (813 mm) and 38 inches (965 mm) above the floor. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height. The backing shall be a minimum of 40 inches (1016 mm) in length. Reinforcement installed at the side of the water closet shall be installed 32 inches to 38 inches (813 mm to 965 mm) above the floor. The reinforcement shall be installed a maximum of 12 inches (305 mm) from the rear wall and shall extend a minimum of 26 inches (660 mm) in front of the water closet. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

CBC 1127A Common Use Facilities (applicable to a public restroom in the lobby)⁸⁰

1127A.2.1. Multiple-Accommodation Toilet Facilities. 4. Grab bars. Grab bars shall be provided on the side wall closest to the water closet and on the rear wall. Grab bars shall comply with this section and Section 1127A.4. The side wall grab bar shall be 42 inches (1067 mm) long minimum, located 12 inches (305 mm) maximum from the rear wall and extend 54 inches (1372 mm) minimum from the rear wall. The front

⁸⁰ California Building Code (Title 24, Part 2), Chapter 11A – Housing Accessibility, § 1127A.2.1 (Multiple-Accommodation Toilet Facilities, Grab Bars). <https://up.codes/viewer/california/ca-building-code-2025/chapter/11A/housing-accessibility#1127A>

end of the side grab bar shall be positioned 24 inches (610 mm) minimum in front of the water closet. The rear wall grab bar shall be 36 inches (914 mm) long minimum and extend from the centerline of the water closet 12 inches (305 mm) minimum on one side and 24 inches (610 mm) minimum on the other side. Exceptions: (1) The rear grab bar shall be permitted to be 24 inches (610 mm) long minimum, centered on the water closet, when wall space does not permit a length of 36 inches (914 mm) minimum due to the location of a recessed fixture adjacent to the water closet. (2) When the enforcing agency requires flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, then the rear grab bar shall be permitted to be split or shifted to the open side of the toilet area.

Marin County Requirements

The Marin County Code does not include provisions beyond the California Building Code Chapter 11A.