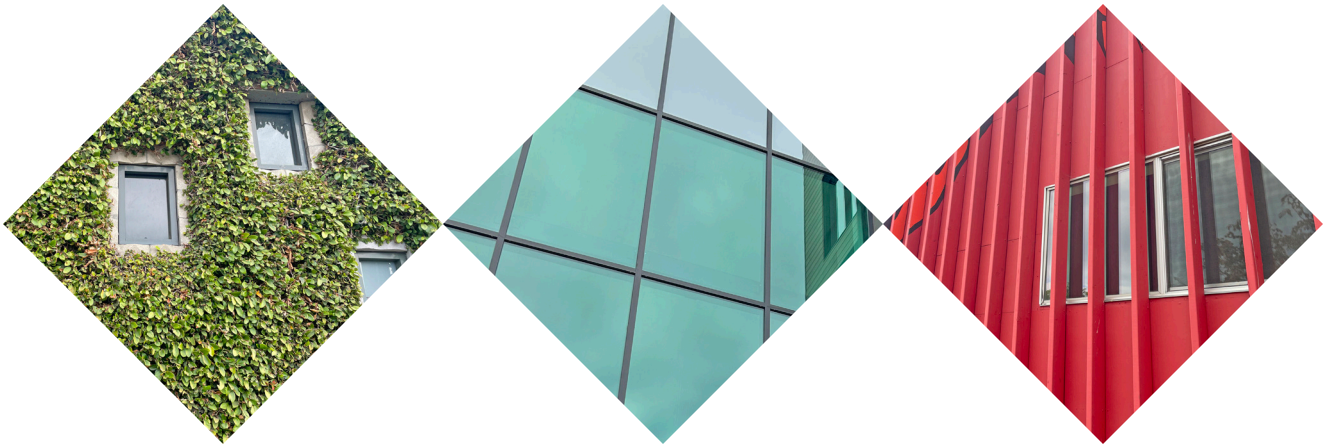
Appendix 1

Industrial Development Case Studies



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Leading the Next Generation of Industrial Buildings & Districts: Industrial Development Case Studies

January 2026

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Table of Contents

Industrial Project Case Studies 1
Key Findings 1
Case Study #1: Prologis Nexus, San Leandro 4
Case Study #2: Prescott Project, West Oakland 8
Case Study #3: Palisade Fremont Innovation Center, Fremont 12
Case Study #4: Pacific Commons South, Fremont 15
Case Study #5: Duke Richmond Industrial Project Design Review Richmond 18
Case Study #6: CenterPoint Properties warehouse project, Richmond 21
Case Study #7: Building 9, Alameda Point, ALAMEDA 25
Case Study #8: EV Truck Charging Depot, Port of Los Angeles and Port of Long Beach 28
Conclusion and Recommendations 29

TABLES

Table 1. Industrial Development Case Studies Overview 3

INDUSTRIAL PROJECT CASE STUDIES

This memo presents eight industrial development case studies selected to illustrate a range of project types, scales, and design approaches relevant to East Bay Priority Production Areas (PPAs). The examples include adaptive reuse, infill, redevelopment, and large campus projects that highlight emerging trends in industrial developments, site planning, building and landscape design, and sustainability practices. Together, the key findings from these case studies provide insights and lessons to inform future industrial design guidelines for the five jurisdictions in the East Bay Priority Production Areas, including Oakland, Fremont, San Leandro, Livermore, and Union City.

KEY FINDINGS

Development

- Lot size and zoning designations directly influence the type of industrial buildings that can be developed, ranging from compact developments to large multibuilding campuses.
- There is an increasing demand for flexible-use industrial spaces, and some of the case studies emphasize this to meet evolving tenant needs and market demands.
- With a limited supply of available land in the region, higher-density forms of industrial development through re-development of existing underutilized sites are crucial in facilitating new growth.
- New construction is pushing towards higher clear height and added second or mezzanine levels to improve site utilization efficiency.
- Multibuilding campuses and large sites often include employee amenity areas, pedestrian/bicycle trails, and shuttle services that connect to public transportation.
- Conversion from heavy industrial or offices to light industrial, R&D, and warehousing is a common theme among the case studies. This occurs more on lots larger than four acres, to provide ample space for business functions.
- Mixed-use developments with industrial use on the ground floor and multiple floors of office spaces above were also seen around the Bay Area. This allows for higher density and brings offices, R&D, and light industrial uses together. This allows on-site coordination and collaboration, and promotes more compact developments.

Site, Building, and Landscape Design

- While older buildings typically have lower clear height (13 to 20 feet), some newer buildings have higher clear height (40 feet), which results in building heights of up to 50 feet or even higher for buildings with a mezzanine level.
- Flexible building height limits can accommodate the intensification of underdeveloped lots.
- Large expanses (more than 100 feet in length) of industrial façade can create a monotonous and visually unappealing streetscape. This can be alleviated by introducing rhythm, depth, and human-scale elements on public-facing building façades, and a landscape buffer along the public frontage.
- Generally, businesses need both an industrial component (such as warehouse), along with an associated office component (about 5 to 10 percent of square footage) at the same site. The office component is an opportunity to include more window lines, entry features, and other elements to deliver buildings with engaging building design.
- Most industrial buildings have extensive ground-level parking spaces required by zoning ordinances, and rooftop and underground parking are very uncommon in the Bay Area. With parking on at least two sides of the building, it creates a challenge in maintaining an active, pedestrian-friendly street frontage. Strategic site layout and screening strategies should be implemented in site design.

Sustainability, Energy-efficiency, and Electrification

- Innovative and sustainable solutions are seen implemented in recent industrial projects, for example, the use of low-carbon concrete, recycled steel, and modular prefabricated components to reduce embodied emissions. Some projects are designed with rooftop solar systems to expand renewable energy access.
- Microgrid-enabled EV charging hubs are emerging with up to 9 MW capacity in California. They are equipped with advanced battery storage solutions to enhance grid resilience and enable vehicle-to-grid capabilities. According to the case studies, micro-grid charging hubs can be constructed as fast as within 6 months.
- Site electrification, beyond EV charging, includes upgrading HVAC systems through electric heat pumps, replacing natural gas heating, and reducing operational emissions.

The eight development cases are summarized in Table 1 on the next page.

Table 1. Industrial Development Case Studies Overview

Project	Location	Project Size	Project Type	Building Area	Building Height	Best Practice Feature
Prologis Nexus	San Leandro	Approx. 12 acres	Infill, Retrofit	266,000 sf	40’ clear height	Sustainability (LEED Platinum)
Prescott Project	West Oakland	N/A	Adaptive Re-use, Renovation	150,000 sf	13’2” – 19’2” clear height	Adaptive Reuse
Palisade	Fremont	4.2 acres	Redevelopment of Office Space	69,872 sf	Approx. 40’ (44’ including parapets), 36’ Clear Height	Site Design, Landscape Design
Pacific Commons South	Fremont	Approx. 90 acres	Multi-building (10) Campus	1,718,490 sf	Approx. 37’ to 45’ (28’ to 36’ of clear height)	Outdoor Amenity Areas
Duke Richmond	Richmond	7.94 acres	Infill, Redevelopment of Heavy Industrial Buildings	154,000 sf	43’ top of parapet, Clear Height 36’	Landscape Design, Building Design
CenterPoint properties	Richmond	31.48 acres	Multi-building (3) Campus	555,537 sf	approximately 42’	Construction and Operation Best Practices
Building 9	Alameda Point	Approx. 4.11 acres	Adaptive Re-use, Restoration	96,000 sf	42’ Clear Height	Historic Restoration
Denker charging depot	Los Angeles and Long Beach	N/A	Microgrid Charging Depot	N/A	N/A	Microgrid with hydrogen generators

CASE STUDY #1: PROLOGIS NEXUS, SAN LEANDRO

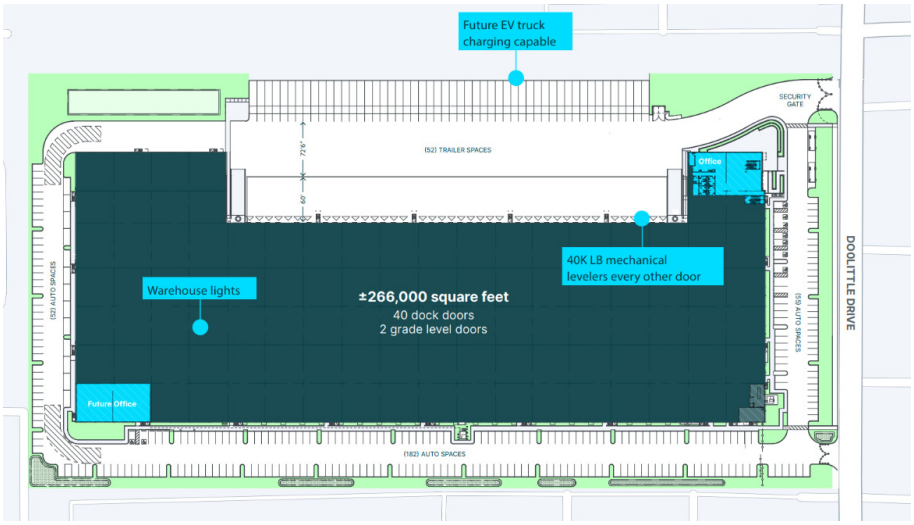
Development Type and Location

Prologis Nexus (1345 Doolittle Drive, San Leandro) is a medium-sized, single-building industrial campus that exemplifies sustainable development. The project reuses an existing building structure, reducing environmental impact while meeting modern logistics requirements. Located within the San Leandro Priority Production Area, the site offers local access to the Port of Oakland, Oakland International Airport, and the Interstate (I-) 880 corridor, making it ideal for distribution and supply chain operations.

- Parcel Size: Approx. 12 acres (approx. 1,000 feet deep x 530 feet wide)
- Development Type: Infill, reuse of existing structure

Site Design

The site is accessed from a primary driveway on Doolittle Drive. Parking is arranged with one aisle along the building façade facing Doolittle Drive and the rest of the parking along the side and back of the building. A landscape buffer sits between the parking row and street sidewalk, with fencing along the buffer.



Prologis Nexus Site Plan. Source: Prologis Nexus Project Brochure

Parking Area

- 289 automobile parking stalls (with landscape division every 10 stalls)
- 52 trailer parking stalls (no landscape division)

Loading Area

- 185-foot truck court designed for truck maneuvering and staging
- 40 dock doors, 2 grade-level doors
- 20 pit levelers to support loading and unloading operations

Building Design

This project has more than 266,000 square feet of industrial space and over 9,500 square feet of office space. The building floor plans are designed to provide flexibility and can be tailored for various business needs and tenants.

The building has corner elements with variation in window patterns, façade materials, wall plane variation, and landscape at the corner entry. The wall plane along the public façade is articulated with different elements at intervals to break the visual effect of the long blank industrial building façade.

Key Features:

- 40 feet clear height (max building height 35 feet allowed, max 50 feet with approval from Zoning Enforcement Official)
- Typical column spacing 50 x 50 feet
- Early Suppression Fast Response (ESFR) Sprinkler system
- Power supply of 5,200 amps, 480 volts
- Natural lighting in the building
- Outdoor patio space

Landscape Design

There is decorative metal fencing along the street. Between the fence and the public sidewalk, a landscaped buffer provides layers of greenery that soften the visual massing of the building and partially screen parking areas. This buffer enhances curb appeal and contributes to a pedestrian-friendly streetscape. There are landscape swales at various locations of the campus to help with stormwater management and biodiversity. Screened trash enclosures maintain a clean and orderly appearance, while bike racks encourage sustainable transportation options. A network of pedestrian pathways ensures safe and convenient circulation, enhancing connectivity across the campus.

Sustainability

This project integrates a range of sustainable design features. It is designed to achieve a LEED Platinum rating and aims to provide a 45 percent reduction in embodied carbon emissions and features.

Sustainability Features:

- 14 electric vehicle (EV) car chargers included, with the potential to add 100+ additional chargers
- EV truck charging capable
- Solar-ready
- LED lighting with dynamic controls
- Low-carbon concrete throughout
- Optimized slab: less concrete, more strength
- Cross-laminated timber (CLT) mezzanine

Other Prologis Innovative solutions in sustainability:

The 2023 Prologis Environmental, Social, and Governance (ESG) Report highlights some of the key goals and the range of solutions that Prologis offers to customers. Prologis aims to achieve net-zero emissions by 2040 and offers a variety of sustainable features in development projects. Prologis promotes and incorporates the following sustainable features in industrial projects like distribution centers:

- Support for biodiversity
- Geothermal energy
- Lower-carbon construction materials (e.g., recyclable modular building materials, mass timber, and stronger lower-carbon concrete)
- Sustainable building certificates
- Construction circularity (reuse and recycling of construction waste)
- Electrification

Other innovative solutions for projects include Falkbuilt prefabricated walls made from recycled aluminum, and MDF that are easily reconfigurable and have been installed in 10 projects. OptiPave is a fiber-reinforced paving system that reduces embodied carbon by 20 to 40 percent and concrete thickness, tested in three projects. Pozzotive uses recycled glass to create a cement replacement powder, achieving about 50 percent reduction in embodied carbon.

Summary

Designed to achieve a LEED Platinum rating, Prologis Nexus sets a strong example for integrating sustainability into an industrial building, elevating building design, and including office on-site. The building uses varied articulations to break up its massing, which is an important consideration for large-scale industrial sites. This also sets an example for adding modern industrial structures in areas with existing industrial buildings.



Prologis Nexus Project Building Design and EV Charging Spaces

CASE STUDY #2: PRESCOTT PROJECT, WEST OAKLAND

Development Type and Location

The Prescott industrial development in West Oakland is an example of renovation and adaptive reuse in a mixed-use neighborhood. It includes a group of buildings designed for advanced manufacturing and flexible uses, including life science, food technology, and green technology. The innovative campus contains approximately 100,000 square feet of building area equipped with vibrant gathering spaces, office, industrial workspaces, loading areas, and parking. The campus is conveniently located near the intersection of major freeways, the Port of Oakland, and the Bay Bridge.

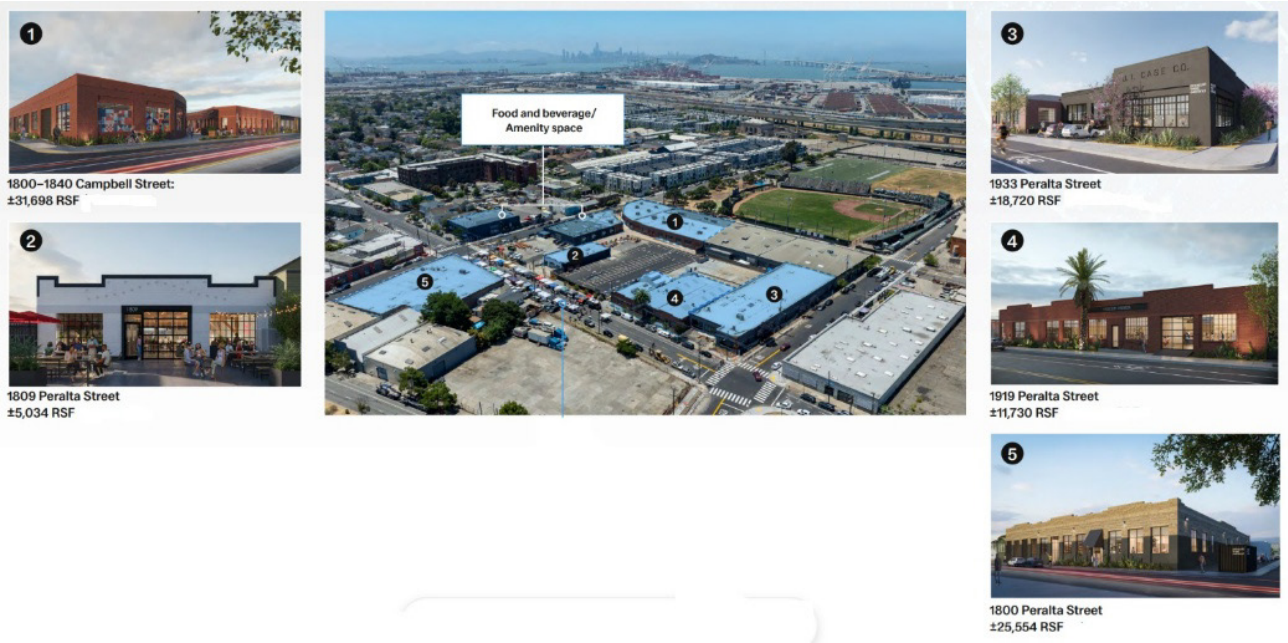
Site and Building Design



Prescott Project Site Plan Source: SrmERNST

The site is integrated into the existing urban fabric, with circulation connected to the city's road network, along with some internal circulation and internal on-site parking.
The individual industrial buildings vary in size between 5,000 to 31,700 square feet and include several amenities, including new conditioned office space; new restrooms; refurbished or new window systems; new mechanical, plumbing, and lighting systems; new roof and building slab; new HVAC; partial or full seismic upgrades; fire alarm systems; and fresh finishes and landscaping.

- Total Building Area: Over 150,000 square feet
- Project Use Type: Early Stage R&D, Advanced Manufacturing, Food Market



Prescott West Oakland Overview. Source: Prescott West Oakland Portfolio Brochure

Design features and power requirements vary slightly based on the floor area of buildings, as described below.

1800 Peralta Street, with floor area of approximately 25,500 square feet, has the following design features:

- About 6,900 square feet of office space
- 17 feet, 3 inches – 19 feet, 2 inches clear height
- Power upgraded to 2,000 Amps at 480 volts; 65 Watts per square feet
- ADA compliance
- Dock-high and grade-level loading
- Parking

1933 Peralta Street, with floor area of approximately 18,700 square feet, has the following design features:

- 5,775 square feet of office space
- 13 feet, 2 inches – 17 feet, 4 inches clear height
- Power upgraded to 800 Amps; 3 phase 277/480V; 36 Watts per square feet
- ADA compliance
- Grade-level loading
- Parking at rear of building

1919 Peralta Street, with floor area of approximately 11,700 square feet, has the following design features:

- 3,000 square feet of office space
- 18 feet, 6 inches clear height
- Power upgraded to 1,000 Amps at 56 Watts per square feet
- ADA compliance
- Grade-level loading
- Parking at rear of building

Landscape Design

A diverse selection of plant species is integrated throughout the area, creating visual interest and ecological value. Certain sections of the site include commercial spaces, including a food market, with outdoor seating areas, encouraging social interaction and relaxation. Additionally, placemaking elements are included to create a vibrant, attractive environment that fosters a sense of community and engagement.

Summary

This is a successful example of adaptive reuse, bringing activity and modern uses into an older industrial neighborhood. The overall design balances functional needs with features that make the site welcoming and accessible for both visitors and employees. Each building retains its own unique historic features, while the renovations brought in modern elements that are compatible yet also distinguishable. Public art is used throughout the site to improve site character.



Prescott Industrial Project in West Oakland

CASE STUDY #3: PALISADE FREMONT INNOVATION CENTER, FREMONT

Development Type and Location

The Palisade Fremont Innovation Center in Fremont is an infill project with a Class-A advanced manufacturing facility. The facility, which replaces a 5,000-square-foot office building, is under construction and is expected to be completed by 2026. The building is designed with seven dock-high doors, one grade-level door, skylights, 135-foot secured truck court, EV charging infrastructure, and power supply of 4,000 Amps at 277-480 volts. The column grid varies between 52 feet and 60 to 70 feet.

- Site size: 4.2 acres
- Floor-area ratio (FAR): 0.38 (max allowed 0.45)
- Rezoning: From Regional Commercial (C-R) to Tech Industrial (I-T)
- Previous Use: A single building that provides approximately 5,000 sf of office space, which would be demolished.

Site and Building Design

- Site Access: Provided through one right-in/right-out only driveway on Fremont Boulevard and two full-access driveways on Ice House Terrace, which is shared with the adjacent parcel. In addition, the project can also be accessed through a driveway on Hugo Terrace via the adjacent parcel to the east.
- Parking spaces:
    - 107 automobile parking spaces
    - 8 long-term bicycle parking spaces
    - 10 short-term bicycle parking spaces
- Building Height: Approximately 40 feet (44 feet including parapets), 36 feet Clear Height (Max Height Allowed 75 feet)
- Total Building Floor Area: 69,872 square feet (including 4,990 square feet office space)



Palisade Innovation Center Site Plan Source: https://northpalisade.com

Landscape Design

The project will include approximately 21,186 square feet of new landscaped area across the project site, including 50 trees. All landscaping will be drought-tolerant to minimize water demand. The project will also include four landscaped bioretention basins and two flowthrough planters, as well as curb slots from paved areas to direct stormwater to bioretention areas. Roof drains along the north and south of the proposed structure would direct stormwater runoff through 8- to 12-inch storm drainpipes to biotreatment ponds along the north, east, and west property lines.

For lighting, there would be 24 light fixtures affixed to the exterior of the building. Additionally, six light fixtures would be placed around the parking lot. For screening purposes, plants will be installed around aboveground utilities to screen utilities from public streets and parking areas.

- Total Landscape Area provided: 21,186 square feet (9,538 square feet required)
- Total Trees Provided Including Existing: 120
- Temporarily irrigated native bio-swale area: 5,385 square feet
- Drought-tolerant irrigated landscape: 15,801 square feet

Summary

The Palisade Fremont Boulevard Project is an industrial infill development that has very efficient site layout, providing clear internal circulation for trucks and employees. It integrates sustainable infrastructure, including bioretention basins and flow-through planters that manage on-site stormwater and improve water quality. All plantings are drought-tolerant, reducing long-term maintenance and irrigation needs.

During the design review process, City staff appreciated the quality of the project, which emphasized key design features to help resolve concerns and expedite the review process. Overall, the project supports Fremont's vision for high-quality, technology-oriented industrial growth, and is a good example of a sustainable industrial infill project on a previous office use site.



Palisade Fremont Innovation Center by North Palisade Partners, https://northpalisade.com/portfolio/palisade-fremont-innovation-center/, accessed July 29, 2025.

CASE STUDY #4: PACIFIC COMMONS SOUTH, FREMONT

Development Type and Location

The Pacific Commons South complex is a master-planned business park in Fremont, about three miles from the Warm Springs BART Station. The complex contains a group of 10 freestanding, Class A flexible industrial buildings with access to several amenities, including EV charging stations, outdoor break areas for employees, access to retail and entertainment facilities at Pacific Commons Shopping Center, access to bike and pedestrian trails, and parking. The complex is also well-connected to the freeway and provides shuttle service to public transportation for employees. The buildings are suitable for advanced manufacturing, biotech, food production, offices, and warehouse use.

- Development Type: 10-building industrial complex
- Project Site Size: Approximately 90 acres
- Project Use: Advanced manufacturing, biotech, food production, industrial and warehouse uses

Site and Building Design



Pacific Commons South Campus Plan Source: https://pacific-commons-south.cbre-properties.com/

- Total Building Area: 1,718,490 square feet
- Height: Approximately 37 to 45 feet (28 to 36 feet of clear height)
- 120-185 feet truck courts and optimal truck circulation
- 2.5 percent skylight ratio
- 100 percent solar roof capability
- Abundant trailer parking
- EV charging stations
- ESFR sprinkler system
- Power: 1,000-4,000 Amps, 277/480 Volt Power, expandable
- Employee Amenities: Pedestrian and bike trails, open-air break areas, shuttle service to public transportation

Summary

Pacific Commons South Industrial Park represents a large, master-planned industrial campus development. Although an opportunity for industrial development at this scale is not currently common in the Priority Production Areas (PPAs), this shows the viability and market needs for this type of development. The project emphasized outdoor amenity spaces for employees and proximity to retail, restaurants, and entertainment. The outdoor amenity spaces have some potential to add shading structures to improve the experience.



Pacific Commons South Campus Amenities (https://pacific-commons-south.cbre-properties.com/campus-amenities/)

CASE STUDY #5: DUKE RICHMOND INDUSTRIAL PROJECT DESIGN REVIEW RICHMOND

Development Type and Location

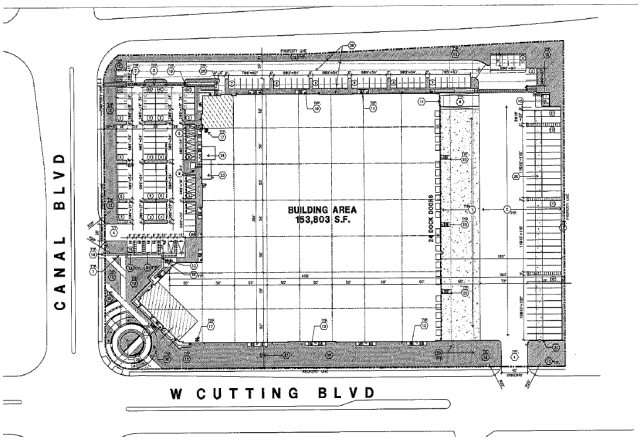
The Duke Richmond project by Duke Realty will be along West Cutting Boulevard in Richmond. The existing zoning and General Plan Land Use Designation is Light Industrial, and the former use of the site was a nonconforming heavy industrial use. According to the Design Review Board Report, the proposed project complies with building height requirements, FAR, parking, and landscaping (percentage of lot area and number of parking lot trees provided) requirements.

- Site Size: 7.94 acres
- FAR: 0.44 (0.65 permitted)

Site and Building Design

All loading docks, roll-up doors, and utilities are in the rear of the property, which will be accessible by a driveway at the eastern corner of the property on West Cutting Boulevard. Overall, the building is characterized by a clean profile with simple forms and is primarily designed for functional use. Other design features include concrete tilt-up panels, application of decorative brick accent panels on the façade to mark entry, and large windows with blue glazing and black mullions.

- Parking Spaces: 79
- Building Height: 43 feet top of parapet, Clear Height 36 feet (55 feet permitted)
- Building area: Approximately 154,000 square feet light industrial facility containing 144,802 square feet warehouse space, 9,000 square feet office space, including a mezzanine.
- Loading area: 24 dock-high doors and 65 trailer parking stalls.





Duke Richmond Industrial Project Site Plan and Building Design

Issues raised and suggestions from the Review Board included the following:

- Site's prominent location near the Point Richmond Historic District and at a busy freeway entrance.
- Street intersection of West Cutting and Canal Boulevard should incorporate some aspects of a Node, such as a more welcoming corner for the building's entry.
- The south elevation on West Cutting Boulevard appears more generic. The applicant may consider adding a mural or other enhancement that breaks the long, street-facing wall.

The following Conditions of Approval were attached to this project:

- Lighting installed throughout the site shall consist of pedestrian-friendly lighting at a human-scale height. Lighting shall also be consistent with International Dark-Sky Association guidelines and include any shielding necessary to limit the amount of light spillover to residential areas. LEDs shall be 3,000 K maximum with warm light.
- The applicant shall implement the Mitigation Monitoring and Reporting Program (MMRP) as required by the California Environmental Quality Act (CEQA).

In 2025, the project has been built to Design Review conditions.

Landscape Design

The proposed project would include bioretention areas in the landscaped open space at the frontage along West Cutting Boulevard, and shade trees would be planted in the open space frontages along West Cutting Boulevard and Canal Boulevard. Various drought-tolerant and native shrubs and grasses, with flowering perennials for accents, would also be planted around the building, the bioretention area, and the perimeter of the site.

- Landscape Area: ±45,815 square feet (13 percent of total site)
- Parking Area Trees: 39

Summary

For an industrial site, the Duke Realty project emphasizes design quality at the street edge. The corner entry plaza at Canal and West Cutting Boulevards features landscaping, seating, and decorative brick façade treatments, creating a visually appealing and welcoming gateway to Point Richmond. The varied façade colors, glazing, and canopy detailing reduce the building's perceived mass and provide architectural rhythm along the frontage. Overall, this project is a good example of a well-designed industrial site by combining functional logistics and visual quality. It turns a formerly underutilized heavy-industrial parcel into a clean, modern, and contextually sensitive light-industrial facility.



Duke Richmond Industrial Project Landscape Feature and Building Corner Design

CASE STUDY #6: CENTERPOINT PROPERTIES WAREHOUSE PROJECT, RICHMOND

The CenterPoint Properties Warehouse project site is on the southeastern corner of Brookside Drive and Fred Jackson Way, in North Richmond, Contra Costa County. The project was approved in May 2022 and involves consolidating 19 parcels into 3, demolishing existing structures, and installing landscaped areas, including bioretention zones. This project contains several amenities and off-site improvements, such as roadway upgrades, bicycle and pedestrian facilities, and utility connections. Additionally, the project will remove seven protected trees, and the site will be annexed into the West County Wastewater District upon project approval and CEQA certification.

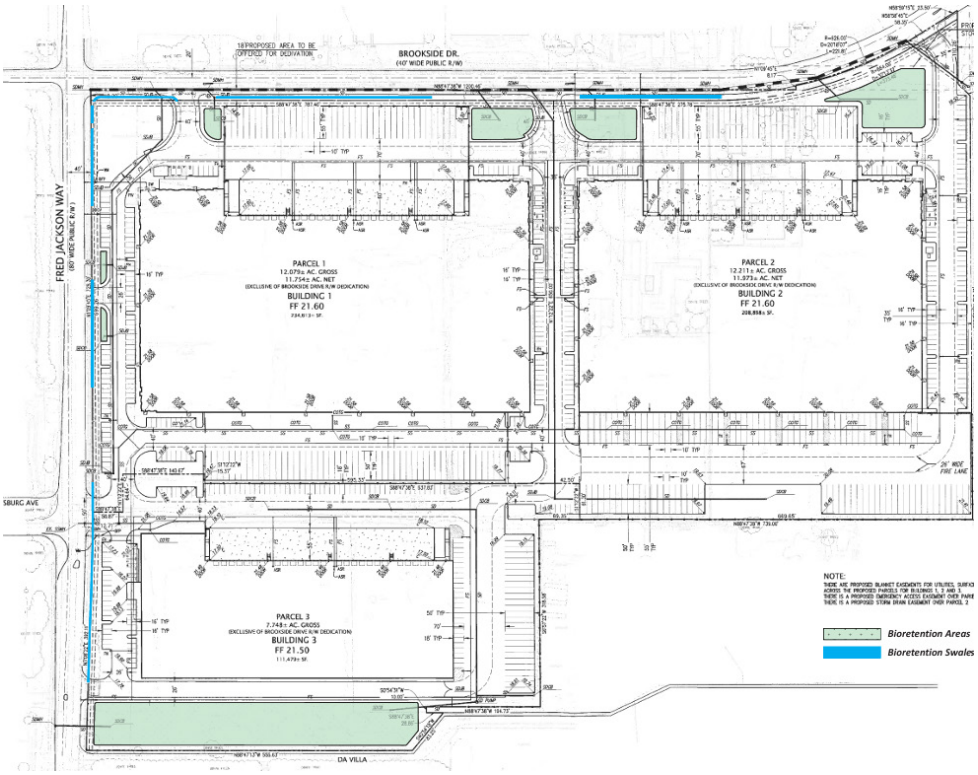
- Project Site Size: 31.48 acres (consists of 19 parcels)
- Land Use Designation: Light Industry (LI) and Heavy Industry (HI)



CenterPoint Properties Warehouse Birdseye View Source: https://www.contracosta.ca.gov/8443/CenterPoint-Properties-Warehouse-Project

- Zoning: P-1 Zoning District Large-scale Integrated Development
- Project Use: Warehousing, research and development, or similar light-industrial uses consistent with the P-1 Zoning District.
- Development Type: Multi-building (3) Campus, Light or Heavy Industrial Use, Warehousing

Site and Building Design



CenterPoint Project Site Plan Source: https://www.contracosta.ca.gov/8443/CenterPoint-Properties-Warehouse-Project

The project consists of three concrete tilt-up warehouse buildings, with additional building materials consisting of metal, aluminum, and glass. Parking spaces surround the north, west, and east sides of the project. Tubular metal fences will be included on all sides of the project. For sustainability features, the project has committed to the installation of rooftop solar to provide up to 8,083,000 kilowatt-hours per year (kWh/year) of renewable energy, which is anticipated to cover the electricity demand of the proposed project, and the commitment to pursue carbon-free electricity service if on-site renewables do not meet the full electricity demand.

- Site Access: Primary access to the project site would be available via three driveways along Brookside Drive and three driveways along Fred Jackson Way.
- Building Height: 1-story tall, approximately 42 feet (Zoning Max 40’(HI) – 50’(LI))
- Total Building Area: 555,537 square feet (3 warehouse buildings)
- Parking Spaces: Approximately 438 auto and 266 trailer parking spaces.
- Bicycle Facilities: A new bicycle lane along the Brookside Drive project site frontage, 30 bike parking spaces inside 3 buildings
- Sustainability features: LEED standards, photovoltaic panels on the roof

Landscape Design

Landscaping would include a mix of trees, shrubs, groundcover, and grasses. The proposed project would include bioretention treatment areas along Brookside Drive, Fred Jackson Way, and along the southern portion of the site directly south of Building 3 to capture stormwater runoff. A monument sign is proposed at the corner of Brookside Drive and Fred Jackson Way. Future tenants may use wall-mounted signs. Proposed lighting would include exterior lighting for the buildings and pole-mounted lighting throughout the parking areas.

- Landscaped Areas: Approximately 129,719 square feet (including bioretention areas)

Construction and Operation Practice

OPERATIONAL BEST PRACTICES

- Use of zero-emission equipment on the project site from the start of operations.
- For vehicles, delivery vans, and trucks (Class 2 through 6) domiciled at the project site: 33 percent of the fleet will be zero-emission vehicles at the start of operations, 100 percent of the fleet will be zero-emission vehicles by December 31, 2027.
- For heavy-duty trucks (Class 7 and 8) domiciled at the project site, use model year 2014 or later from start of operations, with a transition of all such heavy-duty trucks (Class 7 and 8) domiciled at the project site to be zero-emission by December 31, 2025, or when commercially available for the intended application, whichever date is later.
- EV charging stations.

CONSTRUCTION BEST PRACTICES

- Compliance with the Bay Area Air Quality Management District (BAAQMD) and Contra Costa County required best management practices (BMPs) for construction to reduce emissions and dust.
- Implementation of dust-suppression measures, including wetting surfaces and slowing truck speeds.
- Proper handling of demolition debris and recycled materials to control particulate matter.
- The project includes a set of General Minimization Measures (MM BIO-1b) and measures to reduce disturbance to nesting birds (MM BIO-1a) to prevent harm to wildlife during construction. Construction work shall take place outside of the February 1 to August 31 breeding window for nesting birds.

Summary

County CenterPoint Properties Project demonstrates an industrial redevelopment that incorporates construction best practices and operational best practices to minimize dust, air pollution, noise, and habitat disturbance. Its sustainable operations align with California's climate goals and represent a forward-looking model for industrial development in reducing carbon footprints. It also shows a successful example of consolidating parcels into larger sites for multiple-building campus industrial development.

CASE STUDY #7: BUILDING 9, ALAMEDA POINT, ALAMEDA

Development Type and Location

West Tower 9 (707 West Tower Avenue) is a 1940s warehouse/manufacturing building that has undergone a full refurbishment on the former Naval Air Station at Alameda Point. The building is 15 minutes to San Francisco, less than 10 minutes to Oakland, and has immediate access to major transit corridors, the Port of Oakland, intermodal rail, and Oakland International Airport.

The building is a contributor to the Historic District, and this adaptive reuse project successfully retains the building's historic character while meeting today's demand for contemporary uses. The owners spent approximately $24 million dollars refurbishing Building 9, and an additional $10 million of tenant improvements for Kairos Power, providing a combination of office, labs, and advanced manufacturing space for their 150 employees.

- Development Type: Light Industrial and Manufacturing; Adaptive Re-use, Renovation
- Parcel Size: Approximately 4.11 acres
- Zoning: Adaptive Reuse (AP-AR). Zoning provides flexibility for Office/R&D/Retail/Manufacturing/Industrial. The City of Alameda had also pre-approved zoning for Brewery, Distillery and Bar/Restaurant concepts.
- Utility Services: including up to 2,000 AMP 3-phase power.



West Tower 9 Source: https://www.forge-arch.com/projects/kairos-power/

Site and Building Design

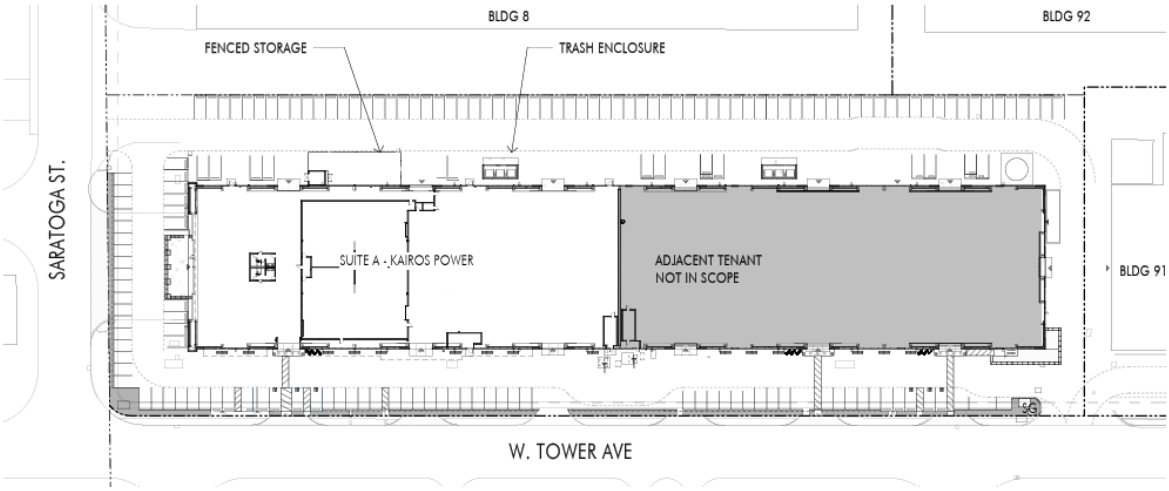
The building encompasses approximately 96,000 square feet. This included restoring the complete shell of the building, a partial second floor, a new concrete slab floor, new utilities, as well as landscape amenities, including a deck on one end and a patio on the other with planters in between. A water retention system was installed for the interior tenants. Overflow water is contained in a bio-filtration planter.

According to Alameda's Preservation Guide for the NAS Historic District, the most important character-defining element of this stucco building was its industrial sash, steel windows. The upper clerestory windows were simply cleaned, repaired, and painted, but the lower windows had been covered with opaque film. The restoration work included replacing about 70 percent of the lower 9,200 panes with Solarban glazing to mitigate solar gain. The lowest operable sashes within the large units were also restored to operation.

All the historic door openings are preserved and many of the industrial sliding doors have been restored. The building's restored central steel canopy is original and remains the most dominant feature of the front façade. In general, the original historic building has been meticulously preserved. The interior space accentuates the natural light via the walls of glass on all four sides of the building.

Building Height: 42 feet Clear Height

Loading Area: Five existing grade-level doors provide building access on all sides. Two recessed dock loading positions can be delivered on the north side of the building.



Building 9 Project Site Plan Source: https://alameda.legistar.com/

Summary

Building 9 exemplifies high-quality industrial site adaptive reuse and renovation. From a physical design perspective, the project successfully transforms a historic warehouse through its structural and infrastructural upgrades into a modern high-performing industrial facility.

The adaptive reuse and renovation respected the original features of the building, including windows on all sides that provide natural light. This infusion of daylight supports sustainable design goals and enhances the user experience, reflecting a contemporary reinterpretation of industrial aesthetics that values human comfort as much as functionality.

Building 9 illustrates how historic industrial buildings can be reimagined as platforms for innovation and have their lifecycle renewed to meet the needs of a contemporary economy.

CASE STUDY #8: EV TRUCK CHARGING DEPOT, PORT OF LOS ANGELES AND PORT OF LONG BEACH

Prologis and Performance Team- A Maersk Company launched an EV charging depot (Denker charging depot) in 2024 that is located near Ports of Los Angeles and Long Beach. The facility is powered by the nation's largest EV truck microgrid. The Denker Hub consists of six independent microgrids, each with its own battery, generators, and charging stalls. Collectively, the six microgrids deliver considerable benefits to the Performance Team and the local community. The depot delivers about 27,000 miles of heavy-duty truck charging daily and can serve over 300 medium- and heavy-duty electric trucks each day. The Prologis Denker microgrid can operate independently of the local grid and uses 2.75 megawatts (MW) of fuel-flexible, hydrogen-ready linear generators paired with 18 MWh batteries to provide up to 9 MW of charging capacity. The charging depot will have the ability to charge up to 96 EV trucks.



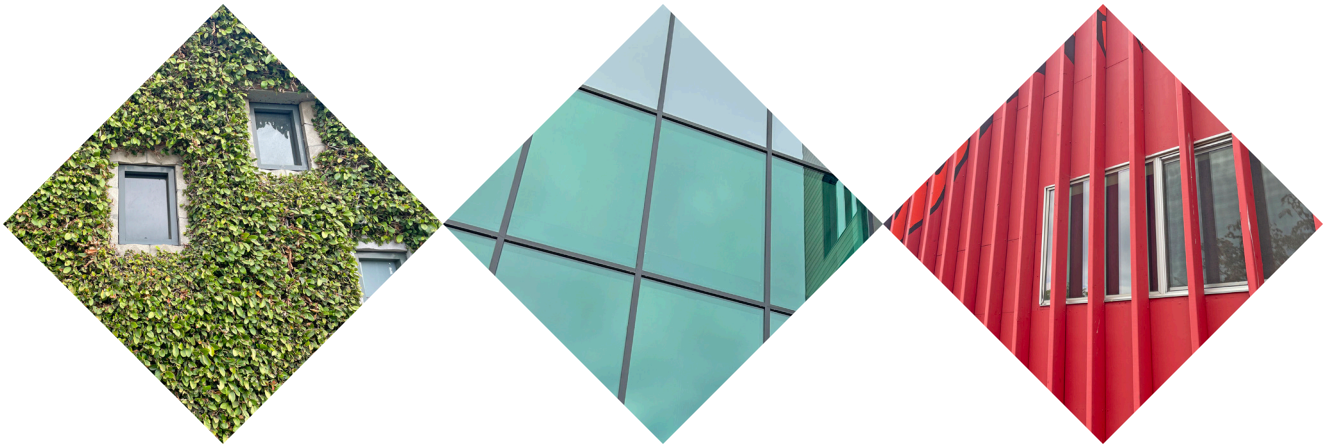
View EV Charging Depot, https://www.maersk.com/news/articles/2024/05/23/maersk-and-prologis-launch-new-ev-truck-charging-depot, accessed July 29, 2025.

CONCLUSION AND RECOMMENDATIONS

- With a limited supply of available lands in the region, intensification of industrial lands is increasingly important and necessary to foster economic growth.
- Design guidance is needed for infill projects that occur in existing neighborhoods, retrofit, renovation and adaptive-reuse projects that redevelop obsolete properties.
- Design standards and guidelines should aim at promoting site efficiency, minimizing environmental impacts, improving employee benefits, promoting energy-efficient development and operation, and contributing to a high-quality public realm.
- Special design guidelines should address sites adjacent to sensitive uses (e.g., residential, open spaces), and for different types of street frontages.
- Other best management practices for construction and operation, including supporting EV trucks, such as charging stations and designated access routes, and measures to minimize noise and air pollutants, should be implemented. Continuous monitoring and compliance protocols should be established to ensure sustainable and community-friendly operations.

Appendix 2

Public Policy Analysis and Recommendations for Industrial Energy Efficiency



Leading the Next Generation of Industrial Buildings & Districts: Public Policy Analysis and Recommendations for Industrial Energy Efficiency

January 2026

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Table of Contents

Public Policy Analysis and Recommendations for Industrial Energy Efficiency 1

Introduction 1

Key Takeaways 1

Goal and Policy Review 3

1. State of California 3

2. Bay Area Region 7

3. Local Jurisdictions 11

4. Findings and Recommendations 17

TABLES

Table 1. Challenges and Opportunities 2

Table 2. Legislation 4

Table 3. California State Programs and Incentives 6

Table 4. Regional Programs and Incentives 10

PUBLIC POLICY ANALYSIS AND RECOMMENDATIONS FOR INDUSTRIAL ENERGY EFFICIENCY

INTRODUCTION

To complement the industrial design guidelines and case studies developed for the East Bay Priority Production Area (PPA) Technical Assistance and Planning project, this memo analyzes goals and policies related to energy efficiency for new and renovated industrial buildings and sites as well as hazard mitigation for industrial sites. It provides a brief overview of relevant state, regional, and local policies and a summary of available programs and incentives. The local jurisdictions covered are Oakland, Fremont, San Leandro, Livermore, and Union City. Based on identified gaps in existing policies, strategies, and incentives, the memo offers recommendations for potential policy and programmatic improvements.

Best practices for integrating energy efficiency, hazard mitigation, and other sustainability considerations are included in the Draft Industrial Building Design Guidelines.

KEY TAKEAWAYS

The following table highlights key findings from the policy and program analysis, including existing challenges for industrial development and operations, accompanied by potential policies, strategies, or incentives to address these gaps. There are limited custom, process-specific incentive pathways focused on industrial facility optimization, and a corresponding need to scale up third-party energy assessments, ongoing energy tracking, and operator training to ensure durable, grid-supportive efficiency gains, particularly in older or underutilized industrial buildings.

More detail can be found in Section 4 of this document.

Table 1. Challenges and Opportunities

Challenge	Opportunity
Currently, efficiency retrofit requirements are primarily tied to renovation permits and don't apply to many older buildings.	Jurisdictions could introduce mandatory energy or emissions performance standards that set carbon caps for large buildings. Realistic timelines and category caps should be included to avoid interruption of industrial uses.
Title 24 regulates industrial buildings under the broad nonresidential category. However, industrial facilities face unique energy challenges, including energy-intensive process equipment and O&M inefficiencies that are not fully addressed by current standards.	Local jurisdictions can adopt nonresidential reach codes or CALGreen Tier 1/2 measures tailored to industrial and warehouse uses. Flexible compliance frameworks could reduce burdens by allowing project teams to select from energy efficiency, electrification, and electric-readiness measures suited to specialized industrial operations. Industrial building design guidelines should be provided for developers and architects at the local or regional level to encourage early planning for electrical capacity, positioning buildings for future electrification as grid conditions and regulations evolve.
Reliance on regional energy production and delivery through PG&E and Ava Community exposes industrial users to high energy costs, grid instability, and power fluctuations.	Energy efficiency policies should promote on-site solar and battery storage and microgrid-ready design to enhance resilience against seismic, flood, and heat risks.

GOAL AND POLICY REVIEW

The following is a high-level overview of the policy framework influencing energy efficiency, sustainability, and hazard mitigation at the state, regional, and local levels.

- **State policies, legislation, and requirements** established through the California Building Code and CALGreen.
- **Regional strategies, programs, and initiatives** from MTC, the Association of Bay Area Governments, and the Bay Area Air District and other relevant programs and incentives.
- **Local energy standards, green building standards, and climate and hazard mitigation strategies** of each participating jurisdiction.

1. STATE OF CALIFORNIA

California has established a comprehensive statutory framework to advance energy efficiency, clean energy deployment, and emissions reduction across sectors, including industrial buildings. State-level goals are established and regulated through assembly and senate bills (AB and SB). SB 415 provides the most current and relevant direction for jurisdictions regarding logistics and warehousing uses, clarifying and updating 2024's AB 98. It was effective as of January 1, 2026, and establishes standards for building design and location, parking, truck loading bays, landscape buffers, circulation, and signage as well as compatibility with adjacent and nearby land uses. It is summarized in Table 2 with other relevant legislation and should be consulted for the design or expansion of relevant uses.

1.1 State Legislation

Table 2. Legislation

	Year	Description
SB 415	2025	SB 415, signed into law on October 3, 2025, refines AB 98 (see below) by introducing clearer, enforceable standards for development of logistics of use, truck routes, and environmental protections. It defines "21st century warehouses" with specific requirements, including compliance with California's latest green building codes, solar and EV readiness, efficient lighting and HVAC, and a transition to zero-emission equipment.
AB 98	2024	AB 98 regulates new and expanded logistics (warehouse) developments, mandating stricter building and design standards, including requirements for energy efficiency, electric vehicle infrastructure, and emissions reductions as well as stringent setbacks and buffering requirements to protect sensitive receptors. Key energy-efficiency measures include installing solar panels and battery storage, using high-efficiency HVAC systems, and equipping facilities with EV charging infrastructure.
AB 205	2022	AB 205 reduces regulatory obstacles and streamlines the approval process for new electric power and storage projects. It includes the Distributed Electricity Backup Assets Program and Demand Side Grid Support Program to incentivize the construction of cleaner and more efficient distributed energy assets, load reduction, and backup generation.
AB 1279 (California Climate Crisis Act)	2022	AB 1279 requires the state to reach net-zero emissions by 2045 and establishes a framework for reducing emissions by 85% below 1990 levels by 2045.
SB 1339	2018	SB 1339 directs the California Public Utilities Commission (CPUC) to evaluate the potential role of microgrids in strengthening the electrical grid and improving community energy resilience. The bill aims to reduce some of the regulatory impediments to microgrid development that have impeded planned projects. The CPUC was directed to create separate rates and tariffs for microgrids to produce a revenue stream and lower other barriers to deployment.
SB 100	2018	SB 100 requires the transition in California to 100% clean energy by 2045, with a goal of 60% renewable energy by 2030. The bill prioritizes energy efficiency and load flexibility to minimize total implementation costs.
AB 802	2015	AB 802 is California's Building Energy Benchmarking Program. It requires owners of commercial buildings and multi-family buildings (with 17+ residential units) over 50,000 square feet to report energy use to the California Energy Commission by June 1 annually.
AB 811	2008	AB 811 amended the state's existing laws to allow PACE financing for renewable-energy and energy-efficiency improvements to homes and businesses.

1.2 California Building Standards Code, California Code of Regulations Title 24

Title 24 establishes statewide minimum requirements for the design, construction, and energy performance of buildings. It applies to new construction, additions, and alterations, with requirements varying by building type, climate zone, and project scope, including industrial and warehouse facilities, which are regulated under nonresidential standards. Part 6 (Building Energy Efficiency Standards) and Part 11 (CALGreen) play a central role in advancing energy efficiency and other sustainability measures, reducing greenhouse gas emissions, and improving overall building performance.

The code is updated every three years and, effective January 1, 2026, the 2025 California Building Standards Code includes more standards for electrification, wildfire resilience, seismic safety, and sustainable construction practices.

PART 6: CALIFORNIA ENERGY CODE

The California Energy Code contains energy conservation standards applicable to all residential and non-residential buildings throughout California. For industrial and warehouse uses, Part 6 primarily regulates building envelope performance, lighting power density and controls, HVAC system efficiency, and electrical infrastructure readiness. The 2025 standards place increased emphasis on high-efficiency lighting, advanced controls, and electrification-ready design.

PART 11: CALIFORNIA GREEN BUILDING STANDARDS

Part 11, known as CALGreen, is the state-mandated green building code that regulates energy efficiency, water efficiency and conservation, material conservation, resource efficiency, environmental quality, and more. Some local jurisdictions adopt CALGreen Tier 1 or Tier 2 measures or additional local amendments that include additional requirements. Jurisdictions can also voluntarily adopt “reach codes” that are more stringent than the state’s energy requirements in Title 24. A reach code can stand alone or be combined with water efficiency, electric vehicle charging, or green materials requirements as part of a green building ordinance. These local measures can impose enhanced sustainability, energy, and resilience requirements beyond the state baseline for industrial and logistics facilities.

1.3 California State Programs

Table 3. California State Programs and Incentives

GoGreen Business Energy Financing program	GoGreen Business (formerly the Small Business Financing program) helps California's small businesses and nonprofits access attractive financing for clean energy generation and storage upgrades, EV charging upgrades, and energy efficiency retrofits. GoGreen Business allows finance companies to offer traditional equipment leases and loans, as well as several variations of service agreements, in which customers either receive guaranteed functionality or savings for a fixed monthly price or make payments based on actual energy savings.
Electric Program Investment Charge (EPIC)	Under the California Energy Commission (CEC), EPIC incentivizes development and commercialization of energy solutions to decarbonize electricity, including projects centered around clean, community-based microgrids.
Building Energy Benchmarking Program (under AB 802)	The Building Energy Benchmarking Program requires owners of large commercial and multifamily buildings (over 50,000 sq ft) to report energy use data every year to the CEC. This information is shared on the CEC website for building owners and operators to compare their building's energy use to similar buildings and take action to improve the energy efficiency of their building, reduce greenhouse gas (GHG) emissions, and lower their utility bills. Public access to building energy information helps markets operate more effectively.
Commercial Property Assessed Clean Energy (C-PACE)	C-PACE is a financing method letting commercial building owners fund energy efficiency, renewable energy, and resilience upgrades (like solar, HVAC, windows, water conservation, seismic retrofits) through a voluntary assessment on their property tax bill; repayment stays with the property, not the owner, even if the property is sold. This allows for 100% financing, long terms (25–30+ years), and lower payments, encouraging major building performance improvements that benefit tenants and the environment.

2. BAY AREA REGION

This section includes regional strategies, programs, and initiatives from MTC, the Association of Bay Area Governments, the Bay Area Air District, and other relevant programs and incentives.

2.1 Regional Policy

PLAN BAY AREA 2050 / 2050+

Plan Bay Area 2050, adopted in 2021, is the region's visionary long-range plan for transportation, housing, the environment, and the economy, led by MTC and the Association of Bay Area Governments. A recent, targeted update, known as Plan Bay Area 2050+, is planned for adoption in early 2026. Plan Bay Area provides overarching strategy and support for projects, but does not override local land use decisions.

Plan Bay Area 2050+ includes Strategy EC-6: Retain and invest in key industrial lands (i.e., PPAs) that are important to the regional economy and middle-wage job growth. It also expands infrastructure improvement categories for renewable energy and building retrofits.

Plan Bay Area 2050+ includes EN1 to EN3 that focus on adapting to sea level rise; providing means-based financial support for seismic, wildfire, and accessibility home retrofits; and providing means-based financial support for energy decarbonization and water efficiency upgrades in all buildings.

OTHER REGIONAL GUIDANCE

2017 Clean Air Plan: Spare the Air, Cool the Climate is Bay Area Air District's strategic blueprint for protecting public health and combating climate change across the Bay Area. It combines traditional air quality planning with a regional climate protection strategy and lays out concrete control measures for emissions reduction.

Planning Healthy Places 1.0 is a guidebook by the Bay Area Air District for addressing local sources of air pollutants in community planning. It includes a set of recommended best practices for local sources of air pollutants and urban heat island effects in community planning. The Air District is currently working on Planning Healthy Places 2.0, which will include more recent examples and strategies and best practices.

Regional Shoreline Adaptation Plan is a regionwide plan for the Bay shoreline that guides the creation of coordinated, locally planned sea level rise adaptation actions that work together to meet regional goals. This project began in January 2023 and concluded with its adoption by the Bay Conservation and Development Commission in December 2024. As part of the project, the RSAP Atlas was released in summer 2025. It is an online mapping tool to support local

governments, communities, and consultants in creating plans. The Atlas provides access to regionally consistent datasets on existing conditions, coastal hazards, strategic regional priorities, assets at risk of flood exposure, and support for adaptation strategies.

2.2 Regional Initiatives

This section highlights MTC's and its partners' initiatives in transportation decarbonization, sea level rise resilience, and energy efficiency. These initiatives address climate mitigation and adaptation through coordinated regional efforts.

TRANSPORTATION

MTC's Climate Initiatives Program has the goal to reduce the transportation sector's carbon footprint to help the Bay Area meet emissions reduction consistent with state law and Plan Bay Area 2050+. MTC's climate initiatives program promotes innovative ways to reduce greenhouse gas emissions in the Bay Area and use federal funding to help achieve regional air quality goals.

MTC Transportation Electrification Initiatives provide grant funding (total investment $65M) and direct technical assistance to local agencies looking to invest in electrification of transportation. Offerings include capital grants to install public charging stations for electric vehicles as well as support for micromobility options like electric bikes or scooters.

California's Active Transportation Program draws both state and federal funds to provide a total of about $320 million each year for bike and pedestrian projects across California to shift trips from cars to walking and biking and reduce greenhouse gas emissions.

SEA LEVEL RISE

The Regional Sea Level Rise Resilience Project List is MTC's effort to identify key projects to adapt Bay Area shoreline to protect against the harms of sea level rise. The Resilience Project List catalogs projects that adapt the nine-county Bay Area shoreline to sea level rise in the decades ahead. The list includes the specific scope of proposed adaptation work as well as the current status, expected timeline, counties affected, and estimated cost for each project. Locally developed projects account for over 50 percent of projects on the list, and the projects are divided into two bins according to the expected amount of sea level rise and timeline. It also includes placeholder projects to recognize adaptation needs for segments of shoreline that have not yet planned for sea level rise. Developed in partnership with the San Francisco Bay Conservation and Development Commission, the Resilience Project List is fiscally unconstrained and can serve as a future advocacy resource.

Some of the key projects identified in the Resilience Project List include:

- Oakland-Alameda Estuary Adaptation Project
- Bay Farm Island Project
- Long Beach Restoration Project Design
- South Bay Salt Ponds: Eden Landing - Southern Eden Landing (Phase 2)
- Alviso Wetland Railroad Adaptation Alternative

The estimated cost to adapt the shoreline in Plan Bay Area 2050+ is $96 billion, but only $6.5 billion in funding is anticipated through 2050. This nearly $90 billion funding gap will need to be addressed through regional coordination.

BAY ADAPT Joint Platform: **Regional Strategy for a Rising Bay** is a regional roadmap for how the Bay Area will adapt faster, better, and more equitably to a rising Bay. In 2019, the Bay Conservation and Development Commission convened a Leadership Advisory Group made up of a diverse group of Bay Area leaders from public agencies, interest groups, community-based organizations, and academia. The Bay Adapt Joint Platform is a consensus-based strategy comprising 9 actions and 21 tasks that will protect people and the natural and built environment from rising sea levels.

ENERGY EFFICIENCY

Bay Area Regional Energy Network (BayREN) is the primary regional initiative for energy efficiency, decarbonization, and electrification across the nine-county San Francisco Bay Area. It's a collaboration of local governments and the Association of Bay Area Governments to reduce energy use, promote efficiency, and lower emissions. BayREN prioritizes support for moderate-income households, renters, and small businesses with aging infrastructure while helping local governments achieve their climate goals.

2.3 Regional Programs and Incentives

The common hazards among the participating East Bay jurisdictions include issues such as sea level rise, climate equity, seismic safety, and wildfire smoke. Many hazards are regional, across multiple individual jurisdictions, and require the cooperation of multiple agencies and local governments.

- **San Leandro Bay/Alameda-Oakland Estuary Adaptation Working Group:** The Working Group coordinates San Leandro Bay/Oakland-Alameda Estuary flood and adaptation projects to protect and restore water quality, habitat, and adjacent community vitality. The interagency group is coordinated by the City of Alameda. Some of the key projects include:
    - North Field Vulnerability Study Project (Port of Oakland)
    - Airport Perimeter Dike Phase II Project

  - Oakland-Alameda Estuary Adaptation Project
  - Bay Farm Island Adaptation Project
  - Doolittle Drive Sea Level Rise (SLR) Adaptation and Bay Trail Gap Closure
- **Bay Climate Adaptation Network (BayCAN)** is a collaborative network of local government staff and partnering organizations working to help the Bay Area respond effectively and equitably to the impacts of climate change on human health, infrastructure, and natural systems. The cities of Fremont, San Leandro, and Livermore are members of the BayCAN.

Table 4. Regional Programs and Incentives

		Description
BayREN Programs	**BayREN Business Program**	BayREN Business is a publicly funded energy-efficiency program that offers free energy-efficiency assessments, financial incentives, and expert technical support to small and medium businesses in all Bay Area counties. It helps property owners afford efficiency upgrades/remodels. Bay Area businesses can benefit from incentives available for energy-efficient HVAC, refrigeration, LED lighting, water heating, envelope improvements, and more.
	BayREN Existing Buildings Study	Provides local governments with data about the existing buildings in their jurisdictions, their energy use and greenhouse gas emissions, and the impacts of energy efficiency and electrification measures that can be used to decarbonize the buildings. Tools and services include Existing Buildings Dashboard and Bay Area Energy Atlas.
	BayREN Public Buildings Assistance	Offers assistance to develop and adopt local energy policies and building codes. Provides training and resources for implementation and enforcement of the California Energy Code and local reach codes.
Industrial Assessment Center, San José State University		The Industrial Assessment Center at San José State helps manufacturing businesses in Central and Northern California with energy assessment. Twenty energy assessments are performed each year for factories, water and wastewater treatment facilities, and other types of manufacturing businesses. The program is funded by the U.S. Department of Energy.
Industrial Assessment Center, San Francisco State University		SFSU-IAC is another Industrial Assessment Center in the Bay Area. It offers no-cost assessments to manufacturing and water/wastewater treatment facilities within a 150-mile radius of San Francisco to examine energy use, waste generation, and water consumption. The annual budget for each center is about $250,000. The participating university contributes about 20% matching funds, and each center serves about 20 plants per year.

	Description
Ava Community Energy and Pacific Gas & Electric Company (PG&E) Programs and Incentives	Ava provides rebates to support holistic electrification, including battery storage, induction stoves, and commercial kitchen electrification. PG&E provides the Generator and Battery Rebate Program, Clean Energy Incentives that support the installation of solar panels, wind and fuel cell technologies, and credit for surplus energy. PG&E also provides programs, rebates, and incentives for businesses, including food processing, biotech, and industrial businesses. Through partnerships, it offers the Industrial Systems Optimization Program and Business Energy Performance Program to help industrial buildings retrofit existing equipment and optimize industrial systems.

3. LOCAL JURISDICTIONS

Jurisdiction-specific guidance for energy efficiency, hazard mitigation, and other sustainability considerations is in multiple documents, including general plans, climate action plans, and local hazard mitigation plans (LHMPs). LHMPs identify natural and human-caused hazards such as floods, wildfires, severe storms, and cybersecurity attacks and include actions that can reduce the threats these hazards pose to the city.

These documents should be consulted for general information and mitigation measures for local risks. Each city may also have supplemental goals or requirements above and beyond the state building codes.

Key aspects of local policies and requirements are briefly highlighted in the remainder of this section.

3.1 City of Fremont

Electrification and Energy-Efficiency Policies
The California Energy Code is adopted without amendments as the energy code of the City of Fremont. The city has a few local amendments on EV readiness/charging requirements from CALGreen.

Fremont's updated Climate Action Plan, "Climate Ready Fremont," was adopted by the Fremont City Council in October 2023. A few strategies relevant to energy efficiency are noted in the plan:

- Adopt electrification and green building reach codes for new residential and nonresidential construction and retrofits.

- Evaluate development incentives (including development fee reductions) and other technical assistance for nonresidential developments and businesses installing zero net energy facilities and other qualifying low-carbon/green features.

Some strategies directly affect industrial sites in the city:

- Adopt a city reach code that requires electric-ready design in new industrial construction and that requires non-core industrial operations—such as space heating and cooling and domestic hot water—to be all electric.
- Consider providing development incentives such as reduced fees for industrial sites that achieve green certifications.
- Electrification retrofit requirements for nonresidential buildings at the time of building retrofit/renovation or equipment replacement (excluding core industrial equipment); design requirements to be proportional to the level of proposed building.
- Expand the city's Green Manufacturing program to encourage zero net energy retrofits of manufacturing buildings; promote emerging low energy, low carbon industrial technologies (such as combustion melting, low-carbon cements, etc.)

Hazard Mitigation Policies

Fremont faces the following potential natural hazards. The Local Hazard Mitigation Plan assesses the risk these hazards pose and sets goals and strategies to reduce long-term risk.

- Earthquake
- Flooding
- Landslides
- Sea Level Rise
- Severe Weather
- Tsunami
- Wildland/Urban Interface Fires

In 2024, the Federal Emergency Management Agency (FEMA) approved a new Tri-City Multi-jurisdictional Local Hazard Mitigation Plan prepared in partnership with the Cities of Newark and Union City, the Alameda County Water District, and Union Sanitary District. The plan is a combined update of Fremont's 2016 Local Hazard Mitigation Plan and the 2017 Union City/Newark Multi-Jurisdiction Local Hazard Mitigation Plan. Annex A of the plan is pertinent to Fremont. The plan is incorporated by reference into Fremont’s General Plan Safety Element and is included in the General Plan's Appendix C.

3.2 City of Livermore

ELECTRIFICATION AND ENERGY-EFFICIENCY POLICIES

The City of Livermore has a reach code, effective January 2023, that focuses on requiring all-electric construction and increased EV charger infrastructure in most new buildings, including industrial, with specific exemptions for existing building renovations. The climate action plan also includes incentivizing electric retrofits in existing buildings, conducting a cost analysis and feasibility study for existing building electrification requirements, and expanding microgrid deployment in the city.

Livermore's energy infrastructure and services are especially vulnerable to extreme heat, wildfire, and landslides. Extreme heat can regularly cause power outages due to a combination of mechanical failure of electrical grid equipment, heat damage to the wires themselves, and high demand for electricity as a result of cooling equipment, all of which cause stress on the grid.

HAZARD MITIGATION POLICIES

Extreme heat, wildfire, and poor air quality, and flooding are projected to pose the greatest risks to the Livermore community. The climate action plan includes hazard prevention, programs, and measures for wildfire, extreme heat, flooding, and drought.

Dublin, Livermore, Pleasanton, and the Dublin San Ramon Services District have partnered to establish the Tri-Valley Local Hazard Mitigation Plan, which was updated and adopted by Livermore in 2024. The plan identifies natural hazards that could impact the Tri-Valley region and establishes policies to mitigate each hazard. Mitigation can include a range of actions, like large capital improvement projects to improve stormwater systems or smaller changes to a local jurisdiction's hazard mapping software. The plan increases the Tri-Valley's competitiveness for FEMA grants.

3.3 City of Oakland

ELECTRIFICATION AND ENERGY-EFFICIENCY POLICIES

The Oakland amendments to the 2025 California Building Codes were approved by City Council in September 2025. The latest amendments emphasize seismic resilience and fire safety, critical for a city situated near major fault lines and vulnerable to climate-driven hazards. Oakland also passed FlexPath and Electric Readiness Reach Codes.

- FlexPath codes require building owners and contractors to choose from a "menu" of energy efficiency, electrification, or electric readiness measures when altering or adding to an existing building.

- Electric readiness codes require building owners to take steps to prepare for full electrification when making additions or alterations to an existing building, setting them up for the lowest possible cost compliance with Bay Area Air District regulations. These steps include adding wiring for electric vehicle charging and electric stoves and, when necessary, upgrading electrical panels.

HAZARD MITIGATION POLICIES

On June 15, 2021, the City of Oakland adopted the 2021-2026 Local Hazard Mitigation Plan (LHMP). As of 2026, the City is developing the 2026 LHMP, a requirement to maintain eligibility for certain types of recovery funding if a disaster were to occur. The Oakland Fire Department Emergency Management Services Division is managing the plan update process.

The LHMP will create a detailed profile for the following identified natural hazards impacting the City of Oakland:

- Dam Failure
- Drought
- Earthquake
- Flood
- Landslide
- Sea-Level Rise
- Severe Weather
- Tsunami/Seiche (water movement caused by shaking such as an earthquake)
- Wildfire

3.4 City of San Leandro

ELECTRIFICATION AND ENERGY-EFFICIENCY POLICIES

City of San Leandro has adopted local reach codes as of January 2023. In San Leandro, these codes generally require newly constructed residential and non-residential buildings to be all-electric and increase electric vehicle charging requirements. Industrial buildings with certain occupancy classifications are exempt from all-electrical requirements and may use combustion equipment. For these buildings, electrical infrastructure and physical space accommodating the future installation of an electrical heating appliance must be included in construction drawings.

Other than local building codes, San Leandro's climate action plan was adopted in 2021 and provides some policy direction on energy efficiency. The nonresidential energy retrofits section, including warehousing and manufacturing centers, has the following strategies:

- Apply benchmarking ordinance to smaller commercial buildings, below the minimum 50,000 sf size threshold for mandatory benchmarking under AB 802, and require commercial buildings to receive an energy assessment every five to ten years depending on size.
- Educate property owners and tenants about energy-efficiency retrofit programs and financing options.
- Work with property owners to offer green leases for tenants, and promote a green lease addendum template that can be used by non-residential property owners to incorporate green lease language into future leases.
- Offer low-cost energy audits for business or office parks.
- Offer reduced fee permitting to project applicants undergoing specifically defined energy retrofit measures, such as a retrofit to achieve zero net energy in an existing building.
- Educate property owners about the benefits of installing cool roofs when reroofing buildings; help interested property owners connect with qualified contractors; and provide educational materials for training resources to local contractors.

HAZARD MITIGATION POLICIES

The General Plan Environmental Hazards Element (adopted in 2016 and updated in 2025) is San Leandro's foundational policy document for addressing natural and man-made hazards, including earthquakes, landslides, floods, sea level rise, wildfire, air and water pollution, hazardous materials, aviation accidents, and climate change. The overall purpose of the Environmental Hazards Element is to minimize the potential for damage and injury resulting from environmental hazards.

Updates are made to comply with changes in state law pertaining to wildfire and climate adaptation, including:

- Evacuation Planning: Recent legislation requires the city to assess the capacity of emergency evacuation routes (AB 747), identify residential areas with less than two evacuation routes (SB 99), and identify evacuation locations (AB 1409).
- Climate Change: Recent legislation requires the city to assess climate risks and identify goals, objectives, and policies that support its adaptation and resilience.
- Wildfire: The Board of Forestry and Fire Protection is now required to review the safety elements of local jurisdictions that contain Very High Fire Hazard Severity Zones as defined by the California Department of Forestry and Fire Protection. Pursuant to Gov. Code § 65302, subd. (g)(3)., CAL FIRE has developed a checklist of safety element requirements that the amendments address.

As of the beginning of 2026, San Leandro is updating its local hazard mitigation plan to help the city's infrastructure build resilience and reduce vulnerabilities.

3.5 City of Union City

ELECTRIFICATION AND ENERGY-EFFICIENCY POLICIES

Union City enforces the California Building Standards Codes, including the Energy Code (Title 24, Part 6) and CALGreen (Title 24, Part 11). The city requires city-sponsored and public partnership buildings that are covered projects to meet a minimum LEED™ Silver rating and be so certified by the U.S. Green Building Council. These projects shall also have a LEED-Accredited Professional as a principal member of the design team.

Union City is actively working on climate planning updates. The City Council voted in May 2025 to establish a Climate Action Plan Task Force as part of updating its climate action plan.

HAZARD MITIGATION POLICIES

Like Fremont, Union City is part of the Tri-City Multi-jurisdictional Local Hazard Mitigation Plan jurisdictions. The goal of LHMP is to reduce long-term risk and loss to people and property in the Tri-City area and to bolster community resilience in the face of future natural disasters. Annex C of the plan is pertinent to Union City.

The following hazards were considered a priority for purposes of mitigation action planning:

- Climate Change
- Coastal Flooding and Sea Level Rise
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Floods: 1%/0.2% annual chance
- Floods: Localized Stormwater
- Landslides
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms
- Wildfire

4. FINDINGS AND RECOMMENDATIONS

Based on the review of state, regional, and local energy-efficiency goals, policies, incentive programs, and requirements, the following gaps have been identified.

- **Lack of energy performance mandates** (carbon caps) that inherently force energy efficiency, electrification, and cleaner energy sources. Benchmarking helps measure, but doesn't require energy-saving action. Efficiency retrofit requirements are only tied to renovation permits and don't apply to many old buildings in the existing inventory.
- **Lack of building codes tailored for industrial buildings.** Title 24 categorizes industrial buildings in the broad non-residential category and provides requirements on general building envelope, HVAC system efficiency, etc. But industrial buildings often have their own challenges regarding energy efficiency, such as inefficient equipment setup and O&M efficiency issues.
- **Lack of rebates, financing, and tax credits for industrial building owners, developers and contractors.** Compared to multifamily and single-family buildings, which have many programs to help those buildings with an upgrade in energy efficiency and hazard protection, there are very limited programs aimed at industrial buildings.
- **Insufficient third-party energy assessment services for existing industrial businesses.** The existing subsidized services, such as IAC, only cover a small share of industrial buildings across the Bay Area, with a focus on wastewater treatment facilities, which are the most energy-demanding. Most buildings don't have an energy analytical matrix to track energy consumption and keep energy savings, nor education on energy efficiency for operating staff.
- **Reliance on regional energy production and delivery** through PG&E and Ava Community. This reliance exposes industrial users to high energy costs, grid instability, and power fluctuations. Service interruptions can disrupt industrial operations, and poor power quality can contribute to long-term damage to industrial equipment and building systems.
- **Funding gap in sea level rise adaptation** has been identified, and regional coordination is needed to help advocate for these adaptations.

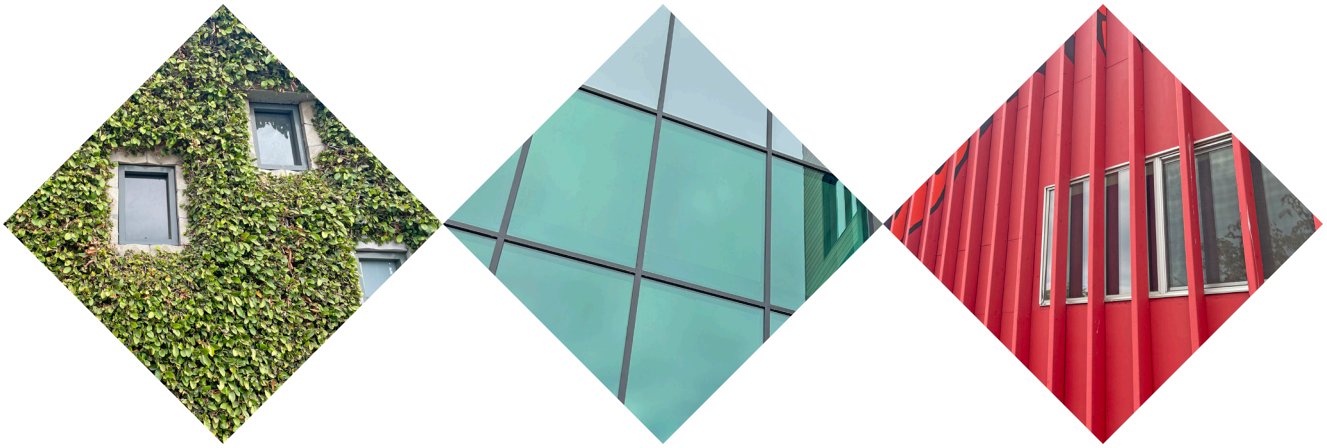
To address the identified gaps, the following strategies are recommended.

- Jurisdictions could introduce **mandatory energy or emissions performance standards** that set carbon caps for large buildings over 25,000 square feet. This can expand retrofit triggers beyond renovation permits. Realistic timelines and category caps should be included to avoid interruption of industrial uses. As an example, New York City's Local Law 97 set carbon emissions caps for energy use in large buildings starting in 2024.

- Local jurisdictions should adopt **nonresidential reach codes or CALGreen Tier 1/2 measures tailored for industrial and warehouse buildings**, emphasizing high-efficiency process equipment, lighting, HVAC systems, and electric-ready infrastructure. Other than building standards codes, jurisdictions can implement frameworks that allow industrial project teams to select from energy efficiency, electrification, and electric-readiness measures, reducing compliance burdens for specialized industrial uses.
- **Industrial-related rebates, grants, and financing tools** should be created and expanded, supported by partnerships with utilities and energy providers, to facilitate the adoption of high-efficiency equipment and renewable-ready infrastructure. Industrial buildings can particularly benefit from **custom, process-specific incentive pathways focused on facility-level optimization,** including process heat integration, compressed air systems, system-level motor and pump improvements, and advanced controls and monitoring, rather than prescriptive component swaps.
- At the same time, states and regions should scale up **third-party energy assessments, ongoing energy tracking, and operator training** to ensure durable, grid-supportive efficiency gains, particularly in older or underutilized industrial buildings.
- **Industrial building design guidelines** can be provided for developers and architects at the local or regional level to encourage early planning for electrical capacity, positioning buildings for future electrification as grid conditions and regulations evolve.
- To align with local climate action plans, **energy efficiency policies should be coordinated with hazard mitigation strategies**, promoting on-site solar and battery storage, and microgrid-ready design to enhance resilience against seismic, flood, and heat risks. Grid reliability is essential to industrial uses, and encouraging on-site clean energy and microgrids will not only help with peak demand reduction but also serve as a measure for hazard preparedness.

Appendix 3

AB98 and SB415 Overview



Assembly Bill (AB) 98 and Senate Bill (SB) 415

The following is a brief summary of AB 98 (2024) and SB 415 (2026) that addresses key definition and features of the two bills, which are applicable to certain industrial uses and seek to address potential community impacts through design, buffering, and truck routing.

Applications and Exceptions

- Establishes statewide warehouse design and build standards for new or expanded logistics/warehouses.
- Targets facilities that generate significant heavyduty truck activity and are within 900 feet of the property line of sensitive receptors (residences, schools, nursing homes, hospitals, playgrounds, etc.)
- Requires that projects meet or exceed meet or exceed the most current standards of Title 24, Part 6 (Energy Code) and Part 11 (CALGreen)
- Exemptions:
  - Facilities where goods sold directly to public, that are primarily served by rail, are a strategic intermodal facility, or are ag use operated <90 days/yr
  - Projects that "commenced the local entitlement process" before 9/30/24
  - "Logistics Projects" with an approval before Jan. 1, 2025
  - Existing facility expansions of less than 20% floor area, exclusive of office space.
  - New mixed-use development provided that no sensitive receptors are within 900 feet of a loading bay

Tier 1 21st Century Warehouses

Facilities over 250,000 square feet must additionally provide:

- Microgrid-ready switchgear system capable of supporting distributed energy resources.
- Advanced smart metering readiness.
- 50% of passenger parking must be EV ready and 10% must have charging stations installed.

21st Century Warehouses

Facilities 250,000 square feet or less must meet the current building energy code and provide:

- PV systems and associated battery storage.
- Cool roofing.
- Medium- and heavy-duty vehicle charging readiness, light-duty electric vehicle charging readiness and installed charging stations.
- Skylights in at least 1% of roof area or equivalent LED efficient lighting.
- Conduits and electrical hookups at all loading bays serving cold storage.
- High-efficiency heating, ventilation, and air-conditioning.

Requirements

Truck Access

- **Roadway Access:** Strategic roadway access via arterial, collector, or commercial/industrial roads (not primarily residential streets)
- **Truck Routes:** Designated truck routes to minimize impacts on residential areas and sensitive receptors
- **Buffers, setbacks, and screening:** Measured from property line of all sensitive receptors: 50 feet if existing industrial zone/entitlement started prior to 9/30/24; 100 feet for projects rezoning to industrial
- **Loading Bays and Circulation:** Truck loading bays and circulation oriented away from sensitive receptors, where feasible
- **Entrances:** Separate heavy-duty truck entrances and on-site truck queuing/ stacking required

Operational and Environmental Protections

- Truck-route signage, wayfinding, and mapping to enforce approved circulation patterns
- Compliance with energy efficiency, electrification, and clean-equipment standards
- Mitigation measures, including idling measures, housing replacement or community protections, when residential impacts occur

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