

Re-imagining San Francisco's Pier 70 Building 12 Through the Lens of Environmental, Historical, and Social Challenges

Sudisha Kumar

Abstract:

Governor Gavin Newsom's recent order for local jurisdictions to proceed with "immediate sweeps" of homelessness encampments brought new urgency to the conversation on homelessness in the Bay Area. In light of this recent decision and current developer-driven renovation of the Pier 70 Area by Brookfield Properties, this research project proposes transforming San Francisco's historic Pier 70 Building 12 into a sustainable homeless shelter in order to address the complex social issues that arise with San Francisco's severe housing crisis and its implications on thousands of displaced families who lack the adequate resources to get by. The design proposal includes in-depth research of local context such as community sentiment, historical relevance, green building practices, and social needs of the San Francisco Bay Area, connecting them to a design that is appropriate and relevant to Pier 70. Building 12 is currently being developed by the Port of SF and Brookfield Properties, and their plans will be considered alongside other design proposals in order to make the design responsive and part of the conversation surrounding this site. The paper resembles a written research report with a significant visual component, including three plan diagrams and an interior view of the proposed design.

Introduction:

As climate change and affordable housing have become pressing concerns in the Bay Area, architects and urban planners have sought to find solutions through sustainable building design. Pier 70 Building 12, an abandoned 130,000 square foot ship-manufacturing warehouse located in San Francisco, may provide solutions to these concerns as it provides an opportunity for renovation, repurposing, and historical preservation.

Site Location & History:

Even before the Gold Rush, the Pier 70 area was already an industrial site. During the two World Wars, the shipbuilding industry grew massively and the area became a profitable industrial manufacturing powerhouse.

Building 12 was originally constructed in 1941 and used by Bethlehem Steel for shipbuilding in World War II. It was considered to be among the most efficient shipyards in the country for its operations. Building 12 continued to be utilized for the construction of ships shortly after the war and was later used to build Bay Area Rapid Transit tunnels that cross under the San Francisco Bay. However, shipbuilding and industrial manufacturing in Pier 70 eventually decreased. Since that time, Building 12 has essentially been left abandoned, remaining in a state of disrepair. Recently, the condition of the building has prompted several organizations, such as Brookfield Properties, Perkins & Will, JLL, and CBRE to brainstorm ways for repurposing it ([Pier 70, 2024](#)). New proposed uses for Building 12 include: a creative makerspace for artisans, a business space, an office, and a general community center.

Project Vision And Goals:

In light of San Francisco's current issues, this paper offers a design interpretation of Pier 70 Building 12 as a sustainable homeless shelter that could potentially reduce the displacement of

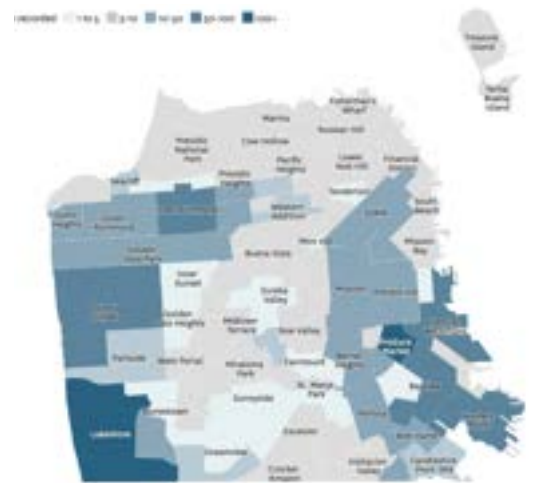
low/moderate income households while simultaneously preserving the building's historical structure. This shelter design is a critical response to the current developer-driven renovation of Building 12 and Governor Gavin Newsom's recent order for local jurisdictions to proceed with "immediate sweeps" of homelessness encampments. Renovating Building 12 into a sustainable homeless shelter directly addresses the complex social issues that arise with San Francisco's severe housing crisis, as well as its implications on thousands of displaced families who lack the adequate resources to get by. In keeping with San Francisco's climate action plan, my re-vision of Building 12 also takes inspiration from LEED guidelines regarding historical reuse and renewable energy in order to promote sustainable design practices for the near future.

The Homelessness Issue:

On April 22 2024, U.S. Supreme Court justices confronted the nation's homelessness crisis via the [Grants Pass vs. Johnson Case](#) as they wrestled with the legality of local laws used against people who camp on public areas. Justices heard arguments in an appeal by the city of Grants Pass, that enforcing anti-camping ordinances against homeless people when there is no shelter space available violates the U.S. Constitution's Eighth Amendment prohibition on cruel and unusual punishments. On June 28th 2024, the U.S. Supreme Court finally ruled that cities can impose penalties and fines for camping on public land, as it does not constitute cruel and unusual punishment of homeless people

Nearly a month later, [Newsom's response to Grants Pass vs. Johnson](#) was in the form of an injunction, as he urged local governments to immediately take action with the substantial funding provided by the state. This has significant implications on California, as California has the largest homeless population in the nation standing at 180,000 according to a 2023 homelessness assessment report from the US Department of Housing and Urban Development.

On July 30th 2024, [San Francisco officials](#) stated that the city expects to ramp up citations of homeless encampments in the coming weeks. The rise in citations will be aided by new teams of police officers paired with city workers that will enforce anti-camping laws for smaller encampments without the regular 72-hour notice. Advocates for the homeless argue that laws like these contribute to the criminalization of the homelessness population for actions they cannot avoid, such as sleeping in public. According to the ASR's 2022 report on San Francisco's Point-in-time (PIT) count of the homeless population, 7754 individuals on average experienced homelessness with 57% remaining unsheltered ([ASR, 2022, 21](#)). More specifically, according to data from the [San Francisco Healthy Streets Operations Center](#), more than 50-100 homeless people who live in vehicles are concentrated in the Central Waterfront, an area that is home to Pier 70 as shown on the right



Overview of San Francisco's Housing Crisis and Its Effects:

In recent years, the Bay Area has witnessed major reductions in the funding for affordable housing programs, severely affecting its low/moderate income households by displacing them and leaving them homeless. Unaffordable housing has been concentrated in three counties—San Francisco, San Mateo, and Santa Clara ([Plan Bay Area 2040, 2019](#))—all of which pose risks to the Bay Area's socioeconomic diversity and economy.

Relative to other counties, San Francisco is a major outlier in its housing approval processes. Researchers who have also interviewed stakeholders and analyzed data compiled by the city and the University of California Berkeley noted that San Francisco's local zoning and planning requirements create hurdles that can delay housing construction by more than two years due to their notoriously complex processes ([KRON4, 2023](#)). This makes the effort to reduce displacement of low/middle-wage workers through building affordable housing even more difficult to achieve.

In addition to the demand for housing, there are also increased development pressures on open space. For instance, as development pressures have reached traditional agricultural communities, there are more opportunities for large corporations to buy agricultural lands for urban usage, causing the cost of agricultural land in the Bay Area to skyrocket ([SAGE 9](#)). Bay Area farmers and ranchers, especially those living near urban areas such as San Francisco, experience the most conflict with these businesses and are thus forced to overcome these competitive disadvantages in order to keep their land. This addresses a new issue of food sustainability, as less agricultural space makes it more difficult to supply healthy food to urban region's residents and visitors. Additionally, less open space as a result of large carbon-positive urban corporations worsens air pollution and climate change, leaving less room for natural inhabitants and ecosystems to thrive.

The demand for housing also has further effects on San Francisco's transportation goals. Many individuals in San Francisco with lower-paying jobs face overcrowded and unhealthy housing, so they are prompted to move farther away from their jobs. This overwhelming disconnect between where people live and work, as stated by Plan Bay Area 2040, makes transportation more difficult, resulting in record levels of freeway congestion, higher transportation costs, and more pollution from passenger vehicles. Despite San Francisco being known for its public transit system, as per the San Francisco Municipal Transportation Authority data, only 11% of trips were on public transit in 2021, while 61% of the public still uses cars. Most of these cars are gas-powered, further contributing to decreasing air quality and climate change.

In terms of its environmental impacts, transportation challenges as a result of the increasing housing crisis are severely costing the Bay Area, especially San Francisco. If there is no meaningful action taken to improve housing in San Francisco, such adjacent issues are likely to become more prominent in the near future.

Design Process:

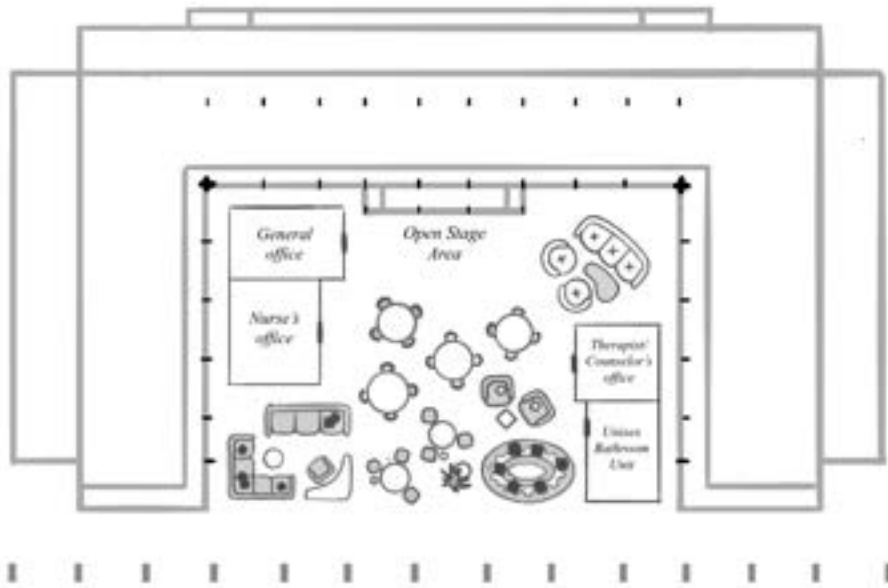
Having been an abandoned ship manufacturing warehouse, Building 12's interior is incredibly spacious with 240 ft x 240 ft floor dimensions and a 59 ft long height. Screenshots from google earth were taken to catch a glimpse of the interior environment and structures that are still standing.



From this, digitally-sketched figures were made to both recreate the interior structure inside the warehouse and repurpose it to fulfill the design program.

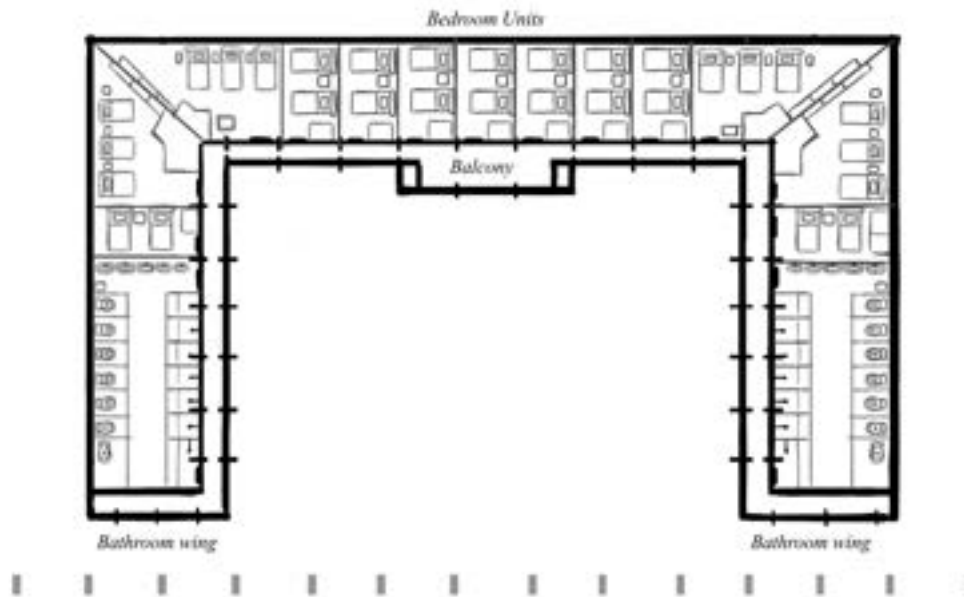
Figures:

Figure 1: Plan Diagram of First Floor



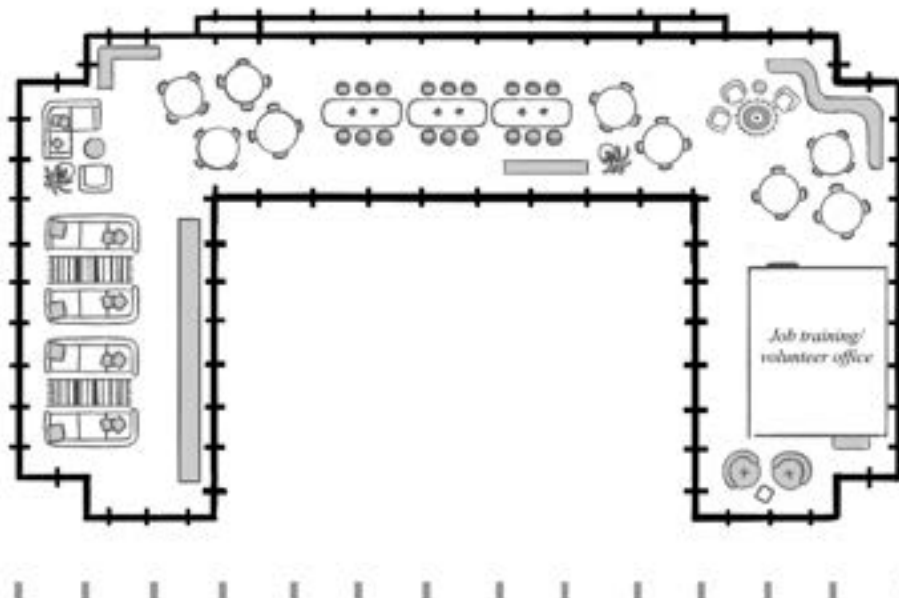
Caption: The Open Space and Services floor features one general office, one counselor/therapist office, and one nurse's office. Given Building 12's large space and natural lighting, the first floor also features open room for a lounge, as well as an additional unisex Bedroom/Bathroom unit. Diagram is to scale: 1 cm is equal to 15 ft in real life. Note: Furniture is not to scale and is enlarged to emphasize detail.

Figure 2: Plan Diagram of Second Floor



Caption: The second floor, which is a part of the main interior structure, features the main Bedroom/Bathroom unit. Communal bathrooms are on the left and right wings of the second floor, while bedrooms are adjacent to the bathrooms and primarily concentrated in the middle.

Figure 3: Plan Diagram of Third Floor



Caption: The third floor is an open, recreational space featuring dynamic and flexible furniture. Activities such as arts and crafts, games, reading, etc. take place on the third floor. Another communal bathroom is available on the left wing, while the right wing features one job training/volunteer office.

Building 12 and Homeless Shelter Concerns:

Source and Concern:

According to an article on [Brighten The Corner](#), an 501(c)(3) nonprofit charity organization dedicated to serving the homeless, many residents feel reluctant to enter a homeless shelter because it may fail to connect them to local job opportunities or help them gain financial stability. This causes many individuals to be stuck in the same situation as they were before entering the shelter.

Brighten The Corner also states that homeless individuals tend to form supportive relationships with one another and may not want to enter a shelter to risk being apart from that system.

The number of Orange County Fire Authority calls for emergency medical services at the Courtyard Emergency Shelter averaged about 78 calls per month with 20 calls per week. This was during the four month period from July 1, 2017 to October 31, 2017. The high number of medical emergencies at the Courtyard Shelter reflects the extreme physical and mental vulnerability of the

Solution:

As Pier 70 has supported many manufacturing-based jobs for centuries, the third floor of Building 12 will contain a Job/Housing Assistance office. This will connect the shelter's residents to local manufacturing jobs, as well as housing opportunities that will enable them to gain housing stability in addition to a financial income

The new Building 12 contains many opportunities for socializing: Residents can connect with one another in the open lounge space on the 1st row or engage in recreational activities on the 3rd floor of the center section.

homeless shelter population ([ACLU SoCal, 12](#)).

Recent research has shown that providing mental health services is effective in enabling individuals to exit homelessness and achieve housing stability ([California Budget & Policy Center](#)). The first floor of Building 12 achieves this as it features a therapist/counseling office as well as a nurse's office for residents to tackle their mental and physical challenges.

Building 12 and Sustainability Concerns:

Industrial buildings in urban areas such as San Francisco often consume large amounts of energy for lighting, heating, and cooling, leading to higher greenhouse gas emissions and increased operating costs. In 2014, just over half of San Francisco's greenhouse gas emissions came from energy used in the city's residential and commercial buildings ([SF Energy Benchmarking Report, 15](#)).

The construction industry results in airborne particles that have a size range of less than 10 micrometers in diameter, making these particles invisible. Such airborne particles cause harm to the environment and humans, and they are most likely emitted due to construction activities such as operations and manufacturing ([The Constructor, 2024](#)).

In an attempt to minimize non-renewable energy consumption, the shelter will install solar panels as a way to power the building without the use of fossil fuels, as well as lower the electricity bill. Given Building 12's proximity to the sea, Hydropower is also another method of sustainable energy production. However, given its larger environmental impact on aquatic habitats, its negative effects on water quality, and high costs, hydropower may not be the most reliable source of energy as compared to solar power. Additionally, to contribute to the ambiance of Building 12's interior, LED lights, which last longer and use up to 90% less energy than most lights, will also be installed ([Energy.gov, 2024](#)).

Building 12 plans to combine the needs for adequate air quality and socializing by implementing gardening as a recreational activity. Residents may spend time developing the greenery around the shelter as a form of stress reduction and healing, ultimately combating air pollution and the amount of carbon emitted by Building 12, as well as nearby manufacturing stations in the Pier 70 area. Specifically, gardening with plants that have adapted to San Francisco's local climate and soil conditions (such as the California poppy, lavender, and sage), supports the county's biodiversity; these plants are most effective for absorbing carbon and often require less water ([USDA, 2023](#)).

All these factors attempt to combat the greenhouse gasses Building 12 and other buildings in the Pier 70 area emit as a result of their operations. Building 12 strives to achieve carbon-neutrality, and hopefully with a strong emphasis on its greenery, carbon negativity. In

addition to achieving sustainability through renewable energy and greenery, Building 12 also plans to incorporate adaptive reuse in order to conserve resources.

Building 12 and Preserving Historical Roots:

Building 12 will continue to maintain its industrial aesthetic, primarily its structural floor, windows, paneling, and roof-decking. Building structure and envelope often account for 75%–80% of a building’s embodied carbon footprint, which is all the carbon dioxide emitted through material production (from manufacturing to transportation). Continuing the industrial aesthetic is a form of adaptive re-use that allows for original building to be preserved while saving on costs and carbon emissions.

Additionally, many buildings in San Francisco perform this aesthetic as a form of preserving urban history. Brookfield Properties’ current plan for the Building 12 project is to “bring retro chic to a revived waterfront” as a way to maintain the historical roots of the Pier 70

area (Autodesk, 2023). By maintaining parts of the industrial aesthetic such as raw/open interior environments, steel columns, and wood, Building 12 becomes a link to San Francisco’s history, allowing it to maintain its distinct urban identity (Dell’Anna, 3). Preserving Building 12’s industrial aesthetic is a sustainable form of historical reuse that allows for the community to feel like a part of San Francisco’s history and future.



Image taken from google earth



Image taken from The Business Journals

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