Port of San Francisco
Port Commission

Finger Pier Exiting Code Analysis

Model Guidelines

Applicable Codes
2013 Port of San Francisco Code
2013 San Francisco Fire Code
2013 California Building Code
2013 California Mechanical Code
2013 California Historical Building Code
2013 NFPA 13
2013 NFPA 14
2013 NFPA 72

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1. Executive Summary

Mission

The intent of this report is to establish appropriate fire and life safety design solutions to protect the health, safety and general welfare of the public. The overarching goal is to provide a model guideline to establish a level of life safety that performs as an equivalent to the prescriptive code, for the unique configuration of a historic finger pier site with maritime, light industrial and office uses. Piers 9 and 19 have been selected as models to establish model guidelines as Pier 9 takes into account the existing office and maritime function, with vehicular parking inside the finger pier, while Pier 19 serves as a prototype for revitalization of a finger pier. The Exiting Code Analysis, Model Guidelines Report will serve as a resource for the Port of San Francisco (POSF) for development, rehabilitation and alteration of the existing finger piers.

Site Structure of a Finger Pier

Finger piers are a unique configuration found on the San Francisco waterfront. A typical finger pier consists of a pile supported pier that extends over the water, with a Bulkhead and transit shed building on top with open air aprons on three sides, with the fourth side facing the street at the seawall. The pier structure consists of reinforced concrete slab on concrete beams and concrete piles. The Bulkhead is typically two stories with the long dimension fronting the Embarcadero Promenade and Roadway. Behind the Bulkhead is the shed, which is typically a high-volume single-story building situated perpendicular to the roadway, with roll-up doors opening onto the aprons along the entire length of either side. Aprons typically consist of asphalt paving over wood timber planks over wood framing and supported by wood piles. The width of the aprons vary based on historical use, and frequently have historic railroad tracks in various configurations. The structure of the aprons is independent to, but attached to the pier structure. The structural condition of existing apron structures shall be confirmed with the most current version of the POSF Facility Rapid Structural Assessment (RSA).

Building Structure, Type of Construction

The Bulkhead structure is typically two-story wood framing with wood trusses and framing with a flat built-up roof. The Bulkhead features a large center archway that originally accommodated rail cars. Currently, the archway is used as a vehicular entrance or it is modified with a storefront door system and used for pedestrian entry into the building. Traditionally, additional historic man doors exist facing the

Embarcadero promenade. The transit shed consists of precast concrete exterior walls, unprotected exterior metal roll-up doors and window openings, wood or steel columns, wood or steel joists and trusses, with built-up roofing over wood decking. The compilation of the building elements determines that a typical finger pier will be classified as Construction Type V-B. Verify the existing sprinkler conditions prior to embarking on an analysis.

Embarcadero Historic District, Americans with Disabilities Act

Finger piers are contributors to the Embarcadero National Register Historic District, which qualifies the finger piers as Historic Buildings as defined in Chapter 8-2 of the California Historic Building Code (CHBC). As such, provisions of the CHBC are applicable to development, rehabilitation, and alterations of the building along with the regular code as noted in Section 8-102.1, which states "…is applicable to all issues regarding code compliance for qualified historical buildings…it may be used in conjunction with the regular code to provide solutions to facilitate the preservation of qualified historical buildings or properties…". Consistent with the Application Section of the CHBC, the project must satisfy the provisions of the PBC first. Where construction compliance with this code is in conflict with historic preservation goals, then the provisions of the CHBC is applied, with approval of the building official. All work shall conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties.

http://www.nps.gov/tps/standards/four-treatments/treatment-guidelines.pdf

As a public entity as defined by the Americans with Disabilities Act (ADA), work to Port of San Francisco facilities is required to follow the Title II requirements of the 2013 PBC Chapter 11B.

Authority Having Jurisdiction and Alternative Methods of Design and Construction

The land within the jurisdiction of the San Francisco Port Commission, as set forth within sections of Statues 1968, ch. 1333 (The Burton Act), consists of 7 ½ miles of waterfront property spanning from Fisherman's Wharf in the North, to Hunter's Point Ship Yard to the South. In accordance of Section 104A of the Port Building Code (PBC), the Enforcement agency is defined as the Port Commission, through the Chief Harbor Engineer as the administrator and enforcing agency of POSF property. The Chief Harbor Engineer shall have the power to render interpretations of this code and to adopt and enforce rules and supplemental regulations to clarify the application of its provisions. Section 104A.2.8 of the 2013 PBC allows use of alternative material, design and methods of construction when approved the by the Chief Harbor Engineer. The Chief Harbor Engineer and Port Fire Marshal may approve any such alternate, provided they find that the proposed design is satisfactory and is at least the equivalent of that

prescribed code in suitability, effectiveness, fire resistance, and safety. The Chief Harbor Engineer and Port Fire Marshal shall require sufficient evidence to be submitted to substantiate claims that may be made regarding an alternate's use. Details requesting the granting of approval of an alternate shall be described in a letter detailing the requested alternate design, which shall be recorded and entered in the files of the code enforcement agency.

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Applicable Codes
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2013 San Francisco Fire Code (SFFC)
2013 California Building Code (CBC)
2013 California Historical Building Code (CHBC), modifies CBC and PBC

Applicable NFPA Standards
2013 NFPA 13 Automatic Sprinkler Systems
2013 NFPA 14 Standpipes and Hose Systems
2013 NFPA 72 National Fire Alarm (amended by CSFM)

Port of San Francisco Code Interpretations

No. 1	January 01, 2014	Application of 1995 SFBC Section 3403.6 to the Proposed Relocation of the Port Maintenance Facility to Pier 48
No. 2	January 01, 2014	Application of 1995 SFBC Section 226.1 definition of yard for purposes of defining separation between pier structures

Effective Use of the Code - Approach

The primary goal of this model code analysis report is to create a safe means of egress for the building occupants, and to identify acceptable alternative design methods and corrective measures for code deficiencies, prescribed in the regular code.

The existing buildings are Qualified Historical Buildings. Provisions of the CHBC may be used in conjunction with the regular code to provide solutions for the preservation of qualified historical buildings. The intent and purpose of the CHBC, as stated in Section 8-101 is to facilitate the preservation and continuing use of qualified historical buildings, while providing reasonable safety for the building occupants and access for persons with disabilities. The CHBC requires enforcing agencies to accept solutions that are reasonably equivalent to the regular code when dealing with qualified historical buildings or properties.

The proposed design shall provide at least the equivalent of the prescribed code in suitability, effectiveness, fire resistance, and safety.

Occupancy Classification, Functional Use and Occupant Load Factor

Calculating the multiple of parts of the means of egress is intrinsically tied to the square footage, occupancy classification, and occupant load.

Historically, the finger pier buildings typically functioned as warehouses where break bulk cargo was loaded and unloaded by laborers, seamen and stevedores to and from ships, rail cars, and trucks. Cargo was stored for transitory periods. This function was unique to these buildings and is not identified as a function of space in CBC Table 1004.1.1. Because break bulk storage is not addressed, the POSF Chief Harbor Engineer created Code Interpretation No. 1 to establish the function, occupant load factor (1 person to every 250 square feet), and the occupancy classification. Additionally, the Code Interpretation No. 1 defines "Substantial Change" and use of chain link fence. Code Interpretation No. 1 is attached as Appendix A.

The open floor plan is the defining character of a finger pier. Activities are consistent with those defined as S-2 in the code. The occupancy classification and occupant load factor from these Code Interpretations shall be used when planning development, rehabilitation, or alteration of the finger piers

Significant development, rehabilitation, and alterations of existing finger piers can trigger a project into "Substantial Change" as described in Section 3403.7 of the PBC. Chapter 34 of the PBC and CBC addresses the parameters of non-structural and structural alterations.

Allowable Area and Sprinklers

Application of the PBC, Section 503 and Table 503, dictates the allowable area in square feet based on occupancy classification, and construction type. The base allowable area can be increased when the building has open frontage and sprinklers. In the process of reviewing modifications to other finger buildings, Code Interpretation No. 2 was created to clarify use of aprons when calculating area and building frontage.

Use of the CHBC, Section 8-302.4 of the CHBC permits a qualified historical building to be unlimited in floor area without fire-resistive area separation walls when the building is provided with an automatic sprinkler system throughout. A list of qualified historic piers can be found at the following link.

http://www.sfport.com/ftp/uploadedfiles/about_us/divisions/planning_development/EmbarcaderoRegisterNominationSec10.pdf

The requirements of allowable floor area from the regular code, resulting in area compartmentalization, are not required, when sprinklers are present. The configuration

of the building is long and narrow with aprons on three sides and public way at the main entrance, much of the interior spaces have direct egress to the exterior from all sides of the building.

Section 8-302.3 permits the required occupancy separations of 1-hour to be omitted when the building is provided with an automatic sprinkler system throughout.

Section 8-402.1 of the CHBC permits the use of an approved automatic sprinkler system designed for exposure protection to satisfy the fire-resistance requirement for existing exterior walls and existing opening protection.

Definition of Yard

Code Interpretation No. 2 shall be used in conjunction with the PBC for the definition of yard. It is the policy to allow open water to be included within the definition of what constitutes a yard. For the purpose of establishing compliance with requirements for Unlimited Area, the required 60-ft. of yard shall not include aprons, stringers and marginal wharfs. These areas are integral to the pier structure and are typically classified as either balconies or exterior exit balconies. Code Interpretation No. 2 is attached as Appendix A.

Fire Fighting

Typically that the apron structures will have a load limit of 100 psf., which is not capable of supporting fire department firefighting suppression engines. In the case of significant development, rehabilitation, or alterations, a Class I standpipe with a 3-inch (NST) hose connection shall be provided within 150-ft. of all areas of exterior egress aprons (spaced at no more than 250-ft. apart) to facilitate the fire department's response to a fire emergency. Smoke detection, fire alarm notification devices, and an automatic fire sprinkler system shall be provided throughout the building to facilitate early warning of tenants, transmission of alarm to monitoring station, and fire suppression. Section 8-411 of the CHBC states that fire alarm systems, smoke and heat detection systems, occupant notification and annunciation systems, smoke control systems and fire modeling, time egress analysis and modeling, as well as other engineering methods and technologies may be accepted by the enforcing agency to address areas of non-conformance.

The existing automatic fire sprinkler system shall be upgraded in accordance with the currently adopted 2013 NFPA 13 based on proposed use and occupancy. Both Piers 9 and 19 have existing Fire Department Connection (FDC) on the west side along the Embarcadero for the sprinkler and 1½-inch houseline systems. A new FDC with (2) 3-inch hose connections shall be added next to the existing FDC for the hose valves. In

addition, a new FDC shall be provided on the bay side toward the end of the apron for fireboat water supply based on the significant alterations or proposed development of the pier.

There are a few existing low-pressure city fire hydrants along the Embarcadero: in front of Pier 15, Pier 27, and Pier 29. There are also green painted bay suction hydrants at the curb in front of Pier 27, Pier 15 and Pier 9 for fire department salt-water drafting from the Bay. In the case of significant development, rehabilitation, or alterations, a new low-pressure fire hydrant shall be installed on the bay side of the Embarcadero promenade and within 100-ft. of the new FDC serving the hose valves.

Fire Separation and Mixed Use

The finger pier buildings have many exits leading directly to the exterior aprons along each side of the building, which in turn discharge the occupants onto the public way. As a means of egress component, the aprons shall be separated from the building interior by a 1-hour fire-resistance rated assembly with protected openings to a height of 10 feet above the walking surface. Existing exterior walls of the transit shed are pre-cast concrete panels, which range in thickness from 3 to 6 inches. Assuming the concrete is carbonate aggregate concrete, a 3.2-inch thickness is expected to achieve a 1-hour fire-resistance rating, per Table 721.1(2), Item 4-1.1. Using extrapolation, the thinnest part of the pre-cast panel would provide approximately 56-minute fire-resistance rating, which is considered as an adequate fire separation by the Chief Harbor Engineer and Port Fire Marshal. Structural columns supporting wall panels shall be fireproofed full-height to provide 1-hour fire protection. All joints and penetrations in the exterior walls shall be protected with fire-resistive caulking up to 10-ft. high. The existing exterior glazing within 10 feet of the apron shall be protected by pendant quick-flow sprinkler on the inside and below horizontal mullions. New exterior glazing shall be 1-hour fire-resistance rated or protected by sprinklers located on the inside and outside and below horizontal mullions. New exterior wall assemblies shall be 1-hour fire-resistance rated construction. New exterior fire doors and steel roll-up doors shall be 1-hour fire-rated, and self-or automatic-closing with gasket seals. Steel roll-up doors shall be automatic-closing upon actuation of smoke detectors or by loss of power to the smoke detector.

New construction requires separation of occupancies within the pier and shall comply with Section 508 “Mixed Use and Occupancy” and Table 508.4. If the central access aisle is to remain for vehicle use and the proposed use within the pier is other than S-2 or F-2, then a minimum 1-hour fire-rated separation is required from the vehicular use.

Means of Egress

Exit access travel distance to the egress aprons shall comply with PBC Table 1016.2. For the purpose of this Guideline Report, the aprons are assumed to be in good condition for exiting. Some existing portions have fallen into disrepair over the years and shall be repaired for exiting as necessary. Minor alterations at finger pier sites that have aprons rated as unsafe shall provide a safe egress solution on a case-by-case basis with approval of the Port Fire Marshal and Chief Harbor Engineer. The most current Substructure Rapid Evaluation Safety Assessment report shall be referenced in the analysis process. Existing fenced-in storage, built-out structures and other barriers on the aprons shall be removed to provide an unobstructed egress path of travel. Asphaltic concrete walking surface shall be re-surfaced to facilitate a smooth surface accessibility compliance.

Means of egress illumination shall be provided along the aprons with standby power. Guardrails shall be provided at the water edge of the aprons, unless exempt for active maritime use. At the locations of active maritime use, bull rails shall be provided as established by the Chief Harbor Engineer in consultation with Maritime Division. Exit discharge gates on the exterior egress aprons shall be equipped with panic hardware. Delayed egress locks shall not be permitted when serving an occupant load of more than 49 people. At locations where secure maritime facilities are restricted and required Transportation Worker Identification Credential (TWIC), alarmed access gates to the floating docks shall be installed so the egress apron is available at all times.

3

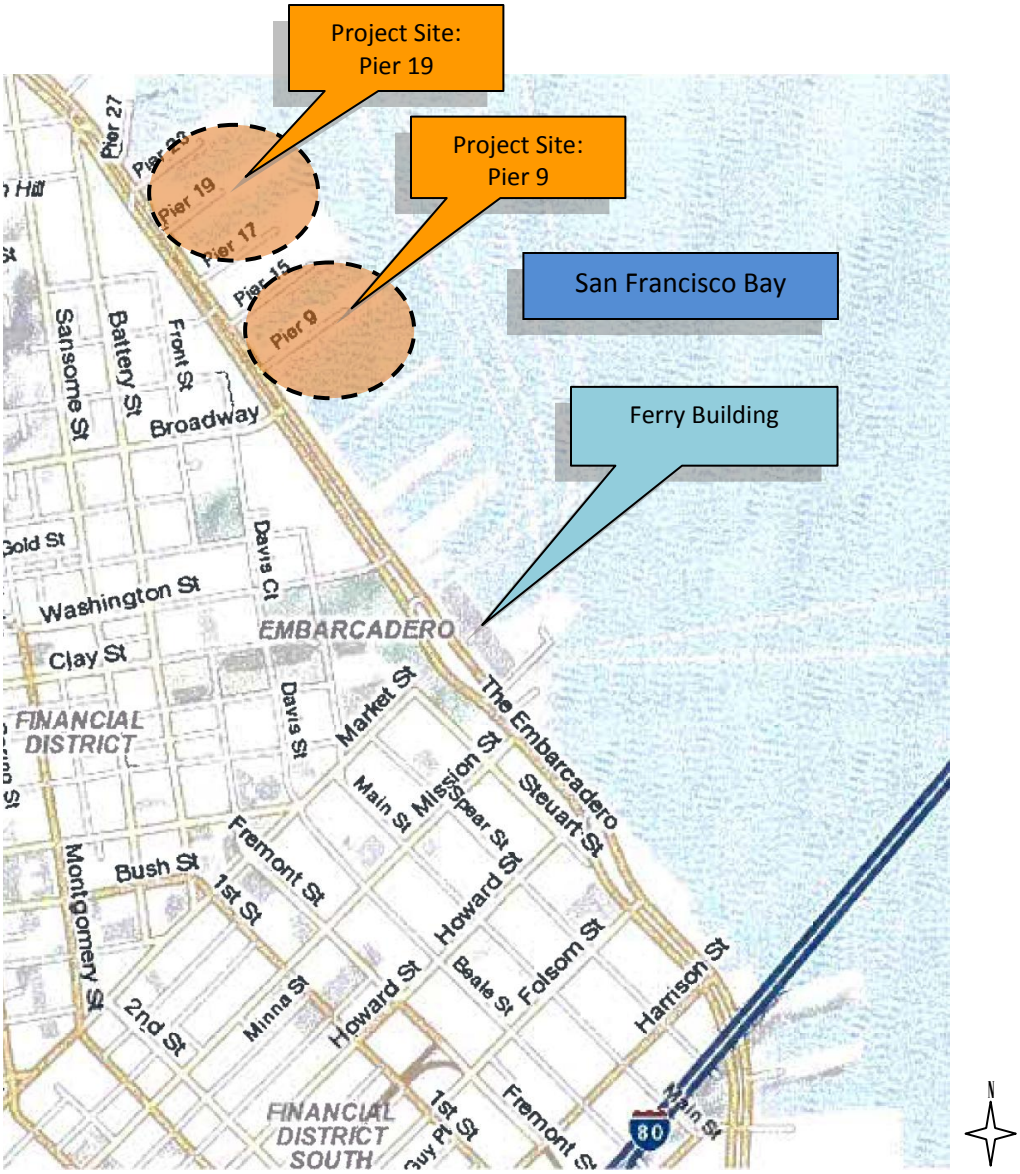
Model Project Sites

Vicinity Map

3. Model Project Sites

Vicinity Map

The Vicinity Map below shows the location of the Piers 9 & 19, situated in the northern waterfront. The two finger piers are over the San Francisco Bay with water on three sides: north, east and south. The Bulkheads on the west side have access to The Embarcadero Promenade.



Vicinity Map – Proposed Site Location

Figure 3.1

4

Code Analysis

Applicable Codes

4. Code Analysis

Code References

Applicable Codes	**Section No.**
A. 2013 Port of San Francisco Building Code (PBC), adopts and amends 2013 CBC	
B. 2013 San Francisco Fire Code (SFFC)	
C. 2013 California Building Code (CBC)	
D. 2013 California Mechanical Code (CMC)	
E. 2013 California Historical Building Code (CHBC) , modifies CBC and PBC	
a) Where the proposed historical building does not meet standard prescriptive codes, CHBC requires enforcing agencies to accept solution reasonably equivalent to the regular code	CHBC 8-101.2
b) CHBC may be used in conjunction with regular code to provide solution to facilitate preservation for qualified historical building	CHBC 8-102.1

Applicable NFPA Standards

1)	2013 NFPA 13	Automatic Sprinkler Systems
2)	2013 NFPA 14	Standpipes and Hose Systems
3)	2013 NFPA 72	National Fire Alarm (amended by CSFM)

Model Code Analysis for Pier 9

1. Type of Construction

Type V-B — Table 601; 602.5

2. Use

Use	**Occupancy**	
Assembly; restaurant (≥50 occupants)	A	303.1
Offices; restaurant (≤49 occupants)	B	304.1
Moderate-hazard factory industrial	F-1	306.2
Retail stores	M	309.1
Storage	S-1	311.2
Enclosed Parking Garage	S-2	311.3

3. Fire Protection Systems

A. Automatic sprinkler system	NFPA 13
a) Throughout building	903.3.1.1
b) Quick-response sprinklers	903.3.2
c) Monitored by approved supervising station	901.6.1
B. Standpipe System	NFPA 14
a) Class I system not required by code for a 2-story	905.3.1

building, but provided for separation of exterior egress aprons

b) Manual wet system with FDC at Embarcadero and end of pier on Bay — 905.3.2
c) 3-inch hose connections for fire department use — PBC 902.1
d) Hose connection location — 905.4
   - Every required stairway
   - Maximum distance measured along path of travel 250-ft

4. Building Separation Distance — Fire-Resistance

North	> 30-ft (open water)	0	Table 602
East	> 30-ft (open water)	0	Table 602
South	> 30-ft (open water)	0	Table 602
West	> 30-ft (public way)	0	Table 602

Code Interpretation No. 2 shall be used in conjunction with PBC to allow open water to be included within the definition of what constitutes a yard.

5. Exterior walls

A. Existing exterior walls:
   - The existing exterior shed walls are pre-cast concrete panels range in thickness from 3 to 6 inches. Assuming the concrete material is carbonate aggregate concrete, a 3.2-inch thickness is expected to achieve a 1-hour fire-resistance rating, per Table 721.1(2), Item 4-1.1. Using extrapolation, the thinnest part of the pre-cast panel would provide approximately 56-minute fire-resistance rating, which considered as an adequate fire separation by the Port authority in the Egress Requirements for the Pier 15 Exploratorium site.
   - Existing exterior windows at aprons are non-rated. Proposed glazing to be in metal frames with pendant quick-flow sprinklers installed inside the building and below all horizontal mullions.

B. New exterior walls:
   - New exterior wall construction shall be 1-hour fire-resistance rating. New exterior glazing up to a height of 10-ft. above apron walking surface to be 1-hour fire-resistance rating, or be protected by pendant quick-flow sprinklers installed inside and outside the glazing and below horizontal mullions.

6. Fire Alarm and Detection Systems — 907

a) Automatic fire alarm systems
b) Manual fire alarm at FACP
c) Smoke detectors
   - Elevator recall
   - Automatic closing assemblies
   - FACP location
   - Fan shutdown

7. Portable Fire Extinguisher

2A:10B:C	3,000 sf. max. area per unit	75 ft. max. distance	Table 906.3(1)
Class K for commercial cooking		30 ft. max. from range	CFC 904.11.5

8. Building Height and Area Limitations Table 503, 504.2, 506.1, 506.2.1

Existing Height & Area	Allowable Height and Area Modification Based on F-1 Occupancy (Non-Separated)
43-ft	No change
1-story; partial 2-story	No change
97,000-sf	40,375-sf.

(300% automatic sprinkler system increase + 75% frontage increase)

9. Unlimited Area

Historic Building Code allows unlimited area of storage areas similar to previous break-bulk storage use — Code Interpretation No. 2, CHBC Section 8-302.4

10. Motor-Vehicle-Related Occupancies

A. Enclosed parking garage — 406.6
   a) Automatic fire sprinkler system shall be provided in accordance with Section 903.2.10 — 406.6.3
   b) Mechanical ventilation system shall be provided in accordance with Section 403.9 of the California Mechanical Code — 406.6.2
   c) Floor surface shall be of concrete or similar non-combustible and non-absorbent materials — 406.4.5
   d) Parking garage shall be separated from other occupancies in accordance with Section 508.1 — 406.4.6
   e) Automatic carbon monoxide monitor system shall be provided

11. Fire-Resistive Separation

A. Occupancies separation
   a) No separation is required between non-separated occupancies — 508.3.3

B. Incidental accessory occupancies separation — Table 509
   a) Storage rooms > 100 sf.
      - Full-height smoke partition
      - Self- or automatic-closing doors
   b) Waste collection room > 100 sf.
      - Full-height smoke partition
      - Self- or automatic-closing doors

C. Other areas required separation
   a) Shaft enclosure (< 4 stories) — 713.4
      - 1-hour fire barrier
   b) Elevator machine room — 3006.4
      - 1-hour fire barrier

c) Elevator lobby (≤ 2 stories) 713.14.1
- Not required

d) Piers over water PBC 602.1.2
- ≥ 1-hour fire-resistive

12. Opening Protective

A. Fire door and shutter assemblies
- Fire door assemblies and shutters shall be installed in accordance with the provisions of Section 716 and NFPA 80 — 716.5
- Fire door shall be labeled showing name of manufacturer with fire protection rating, and permanently affixed — 716.5.7.1
- Oversized fire door shall bear an oversized label by an approved agency or provided with a certificate of inspection furnished by an approved testing agency — 716.5.7.2
- Smoke and draft control doors complying with UL1784 shall be labeled with letter "S" on the fire-rating label — 716.5.7.3
- Fire door frame shall be labeled showing name of manufacturer and third-party inspection agency — 716.5.7.4
- Fire-protection-rated glazing shall bear a label or other identification showing the name of the manufacturer, test standard and information required in Section 716.5.8.3.1 that shall be issued by an approved agency and shall be permanently identified on the glazing — 716.5.8.3
- Fire door shall be self-closing or automatic-closing. Self-closing chute intake doors shall not fail in a "door open" position in the event of a closer failure — 716.5.9
- Single fire door and both leaves of pairs of side-hinged swinging fire doors shall be provided with an active latch bolt that will secure the door when it is closed — 716.5.9.1
- Automatic-closing fire door assemblies shall be self-closing in accordance with NFP A80 — 716.5.9.2
- Automatic-closing shall be by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to smoke detector or hold-open device, and shall not have more than 10-second delay before the door starts to close after the smoke detection is actuated — 716.5.9.3
- Vertical sliding or rolling steel fire door in openings through with pedestrians travel shall be heat activated or activated by smoke detectors with alarm verification — 716.5.9.4
- Rolling fire shutter shall include approved automatic-closing devices — 716.5.11

B. Fire window assembly fire protection rating
- 1-hour fire-rated exterior wall requires a minimum ¾-hour window assembly protection — Table 716.6

13. Interior Finishes

A. Interior wall and ceiling finish material shall meet classification for Flame Spread and Smoke Developed Index — 803.1.1

B. Interior floor finish and floor covering material shall meet classification in accordance with NFPA 253 — 804.2

14. Means of Egress Continuity

- Path of egress travel along a means of egress shall not be interrupted by any building element. Obstructions shall not be placed in the required width of a means of egress. The required capacity of a means of egress systems shall not be diminished along the path of egress travel. — 1003.6

15. Means of Egress Width

- Stairways — Total occupant load served x 0.3 — 1005.3.1
- Other egress components — Total occupant load served x 0.2 — 1005.3.2
- Capacity of means of egress required from any story shall not be reduced along the path of egress travel until arrival at public way — 1005.4
- Where more than one exit, or access to more than one exit, is required, the means of egress shall be configured such that the loss of any one exit, or access to one exit, shall not reduce the available capacity to less than 50 percent of required capacity — 1005.5
- Where the means of egress from stories above and below converge at an intermediate level, the capacity of the means of egress from the point of convergences shall not be less than the sum of the required capacities from the two adjacent stories — 1005.6
- Doors, when fully opened, shall not reduce the required width by more than 7 inches. Doors in any position shall not reduce the required width more than one-half — 1005.7.1
- Handrail projections shall be in accordance with provisions of Section 1013.8. Other nonstructural projections such as trim and similar decorative features shall be permitted to project into the required width a maximum of 1 ½ inches on each side — 1005.7.2

16. Means of Egress Illumination

Means of egress illumination level shall not be less than 1 foot-candle at the walking surface — 1006.2

Emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator — 1006.3

In the event of power supply failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. Aisles and unenclosed egress stairway in rooms and spaces
2. Corridors, interior exit stairways, and ramps and exit passageways
3. Exterior egress components at other than their levels of exit

discharge until exit discharge is accomplished
4. Interior exit discharge elements, as permitted by Section 1027.1
5. Exterior landings as required by Section 1008 for exit discharge doorways

17. Accessible Means of Egress

- Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required from any accessible space, each accessible portion of the space shall be served by accessible means of egress. — 1007.1, 1015.1, 1021.1

18. Means of Egress Doors

A. Doors — 1008.1
- Means of egress doors shall be readily distinguishable from the adjacent construction and finishes
- Mirrors or similar reflecting materials shall not be used
- Shall not be concealed by curtains, drapes, decorations or similar materials

B. Size of Doors — 1008.1.1
- Minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches
- Maximum width of a swinging door leaf shall be 48 inches nominal
- Height of door openings shall not be less than 80 inches

C. Door Swing — 1008.1.2
- Egress doors shall be of the pivoted or side-hinged swinging type
- Doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons

D. Panic and Fire Exit Hardware — 1008.1.10
- Doors serving rooms or spaces with an occupant load of 50 or more in a Group A occupancy shall not be provided with a latch or lock unless it is panic hardware or fire exit hardware

19. Exit Signs

- Not required in rooms or areas requiring only one exit — 1011.1
- Required at exit, exit access doors, along the path of egress travel to exits, and within exits (no more than 100-ft. apart) — 1011.1
- Exit signs shall be internally or externally illuminated — 1011.3
- Tactile (raised character and Braille) signs shall be required at locations indicated per code — 1011.4

- Internally illuminated exit signs shall be illuminated at all times 1011.5
- Graphics shall be minimum 6-inch tall letters with ¾-inch stroke 1011.6.1
- Externally illuminated shall be not less than 5 foot-candles at face of exit sign 1011.6.2
- Illumination shall be on emergency power for not less than 90-minute 1011.6.3

20. Guards

- Required at the edge of Aprons that are not actively being used for Maritime Use
- Shall be located along open-sided walking surfaces that are elevated more than 30 inches to the floor or grade below 1013.2
- Shall not be less than 42 inches high, measured above walking surfaces, stair nosing and ramp surface 1013.3
- Shall not have openings that allow passage of a 4-inch sphere 1013.4

21. Exit Access

A. Egress through intervening space is allowed when: 1014.2
   - Adjoining room and area served are accessory to one or the other
   - Intervening room of same or lesser hazard occupancy group for S, or F
   - Shall not passed through room can be locked
   - Shall not pass through kitchen, storage room, closet or similar spaces

B. Each tenant space shall be provided with access to required exits without passing through adjacent tenant spaces 1014.2.1

C. Common path of egress travel within a tenant space shall meet the requirements of 1014.3 1014.3

22. Exit and Exit Access Doorways

A. Space with one exit or exit access doorway Table 1015.1

Occupancy:	Maximum Occupant Load:
A, B, F, M	≤ 49 occupant load
S	≤ 29 occupant load

B. Three or more exits or exit access doorways 1015.1.1

Occupant load:	Number of exits or exit access doorways:
50 to 500	2
501 to 1000	3
Great than 1,000	4

C. When 2 or more exits or exit access doorways are required, they shall be separated by 1/3 the diagonal distance of the space (in building with automatic fire sprinkler) 1015.2.1

23. Exit Access Travel Distance

Maximum length of travel measured from most remote point within a story along natural and unobstructed path of egress to an exterior exit door, and entrance to an exit enclosure, an exit passageway, a horizontal exit, an exterior exit stairway or an exterior exit ramp

Occupancy:	Pier 9 is equipped with Automatic Fire Sprinkler:	Table 1016.2
A, F-1, M, S-1	250 ft.	
B	300 ft.	
S-2	400 ft.	

24. Corridors

A. For Occupancies A, B, F, M, S, U, corridors shall be fire-resistance rated in accordance with Table 1018.1 unless protected by automatic sprinkler system — Table 1018.1

B. Minimum corridor width, per 1005, but no less than indicated in Table 1018.2 — 1018.2

C. Where more than one exit or exit access doorway is required, the exit access shall be arranged such that there are no dead ends in corridors more than 20 feet in length — 1018.4

Exceptions:

- Group B, F, M, S when building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet
- Dead-end corridor shall not be limited in length when the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor

25. Interior Exit Stairways and Ramps

A. Interior exit stairways and ramps which are part of the exit component shall lead directly to exterior of building — 1022.1

B. Interior exit stairway and ramp shall be enclosed with fire barrier — 1022.2

- ≥ 1-hour fire-resistance rating connecting < 4 stories
- Shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours

26. Exit Passageway

A. An exit passageway shall not be used for any purpose other than as a means of egress — 1023.1

B. Minimum width of passageways shall be determined as specified in Section 1005.1, but shall not be less than 44 inches, except serving occupant load of less than 50 shall be shall not be less than 36 inches — 1023.2

C. Exit passageway enclosures shall have wall, floors and ceilings fire-resistance rating not less than 1 hour fire barrier, and not less than that required for any connecting interior exit stairway or ramp — 1023.3

D. Exit passageways on the level of exit discharge shall terminate at an exit discharge. Exit passageways on other levels shall terminate at an exit — 1023.4

27. Horizontal Exits — 1025

Due to the rarity of horizontal exits on piers, a pre-application meeting shall be required prior to final design

28. Exit Discharge

A. Exits shall discharge directly to exterior of building — 1027.1

B. Exit discharge shall be at grade or direct path of egress travel to grade

C. Exit discharge shall not re-enter building, unless through a rated exit passageway

D. Because no standard exists for finger pier exterior aprons, technical requirements of egress courts shall be applied to the extent possible — 1027.3

E. Exterior aprons/egress court width shall be determined as specified in Section 1005.1, but such width shall not be less than 44-inch wide with an obstructed height of 7-ft. minimum — 1027.4.1

F. Where an exterior apron/egress court is less than 10-ft. in width, exterior walls along the apron shall have not less than 1-hour fire-resistance rated construction for a distance of 10-ft. above the court floor — 1027.4.2

G. Openings within exterior walls shall have a fire protection rating of not less than ¾-hour. The use of sprinklers as an alternative method in lieu of fire-resistive construction and the use of opening protective. Approval of AHJ is required.

H. Where an exterior apron/egress court meets the required width per Section 1005.1, and is also greater than 10-ft. in width, fire-resistive construction and protected openings is not required

I. Exit discharge shall provide a direct and unobstructed access to a public way — 1027.5

Model Code Analysis for Pier 19

1. Type of Construction

Type V-B — Table 601; 602.5

2. Use

Use	Occupancy	
Assembly; restaurant (≥50 occupants)	A	303.1
Offices; restaurant (≤49 occupants)	B	304.1
Moderate-hazard factory industrial	F-1	306.2

Retail stores	M	309.1
Storage	S-2	311.2

3. Fire Protection Systems

A.	Automatic sprinkler system	NFPA 13
a)	Throughout building	903.3.1.1
b)	Quick-response sprinklers	903.3.2
c)	Monitored by approved supervising station	901.6.1
B.	Standpipe System	NFPA 14
e)	Class I system not required by code for a 2-story building, but provided for separation of exterior egress aprons	905.3.1
f)	Manual wet system with FDC at Embarcadero and end of pier on Bay	905.3.2
g)	3-inch hose connections for fire department use	PBC 902.1
h)	Hose connection location ▪ Every required stairway ▪ Maximum distance measured along path of travel 250-ft	905.4

4.

Building Separation Distance		Fire-Resistance	
North	> 30-ft (open water)	0	Table 602
North	<5-ft (188-ft length)	2-hour	Table 602
East	> 30-ft (open water)	0	Table 602
South	> 30-ft (open water)	0	Table 602
West	> 30-ft (public way)	0	Table 602

Code Interpretation No. 2 shall be used in conjunction with PBC to allow open water to be included within the definition of what constitutes a yard.

5. Exterior walls

A. Existing exterior walls:

- The existing exterior shed walls are pre-cast concrete panels range in thickness from 3 to 6 inches. Assuming the concrete material is carbonate aggregate concrete, a 3.2-inch thickness is expected to achieve a 1-hour fire-resistance rating, per Table 721.1(2), Item 4-1.1. Using extrapolation, the thinnest part of the pre-cast panel would provide approximately 56-minute fire-resistance rating, which considered as an adequate fire separation by the Port authority in the Egress Requirements for the Pier 15 Exploratorium site.
- Existing exterior windows at aprons are non-rated. Proposed glazing to be in metal frames with pendant quick-flow sprinklers installed inside the building and below all horizontal mullions.

B. New exterior walls:

- New exterior wall construction shall be 1-hour fire-resistance rating. New exterior glazing up to a height of 10-ft. above apron walking surface to be 1-hour fire-resistance rating, or be protected by pendant quick-flow

sprinklers installed inside and outside the glazing and below horizontal mullions.

6. Fire Alarm and Detection Systems 907

a) Automatic fire alarm systems
b) Manual fire alarm at FACP
c) Smoke detectors
- Elevator recall
- Automatic closing assemblies
- FACP location
- Fan shutdown

7. Portable Fire Extinguisher

2A:10B:C	3,000 sf. max. area per unit	75 ft. max. distance	Table 906.3(1)
Class K for commercial cooking		30 ft. max. from range	CFC 904.11.5

8. Building Height and Area Limitations Table 503, 504.2, 506.1, 506.2.1

Existing Height & Area	Allowable Height and Area Modification Based on F-1 Occupancy			
	B	F-2	M	S-2
43-ft	No change	No change	No change	No change
1-story	No change	No change	No change	No change
94,000-sf	41,850-sf.	60,450-sf.	41,850-sf.	62,775-sf.

8. Building Height and Area Limitations Table 503, 504.2, 506.1, 506.2.1

Existing Height & Area	Allowable Height and Area Modification Based on F-1 Occupancy
43-ft	No change
1-story	No change
94,000-sf	40,375-sf.

(300% automatic sprinkler system increase + 75% frontage increase)

9. Unlimited Area

Historic Building Code allows unlimited area of storage areas similar to previous break-bulk storage use — Code Interpretation No. 2 CHBC Section 8-302.4

10. Fire-Resistive Separation

A. Occupancies separation
a) No separation is required between non-separated occupancies — 508.3.3

B. Incidental accessory occupancies separation — Table 509
a) Storage rooms > 100 sf.
- Full-height smoke partition
- Self- or automatic-closing doors

b) Waste collection room > 100 sf.

- Full-height smoke partition
- Self- or automatic-closing doors

C. Other areas required separation

a) Shaft enclosure (< 4 stories) 713.4
- 1-hour fire barrier

b) Elevator machine room 3006.4
- 1-hour fire barrier

c) Elevator lobby (≤ 2 stories) 713.14.1
- Not required

d) Piers over water PBC 602.1.2
- ≥ 1-hour fire-resistive

11. Opening Protective

A. Fire door and shutter assemblies

- Fire door assemblies and shutters shall be installed in accordance with the provisions of Section 716 and NFPA 80 716.5
- Fire door shall be labeled showing name of manufacturer with fire protection rating, and permanently affixed 716.5.7.1
- Oversized fire door shall bear an oversized label by an approved agency or provided with a certificate of inspection furnished by an approved testing agency 716.5.7.2
- Smoke and draft control doors complying with UL1784 shall be labeled with letter “S” on the fire-rating label 716.5.7.3
- Fire door frame shall be labeled showing name of manufacturer and third-party inspection agency 716.5.7.4
- Fire-protection-rated glazing shall bear a label or other identification showing the name of the manufacturer, test standard and information required in Section 716.5.8.3.1 that shall be issued by an approved agency and shall be permanently identified on the glazing 716.5.8.3
- Fire door shall be self-closing or automatic-closing. Self-closing chute intake doors shall not fail in a “door open” position in the event of a closer failure 716.5.9
- Single fire door and both leaves of pairs of side-hinged swinging fire doors shall be provided with an active latch bolt that will secure the door when it is closed 716.5.9.1
- Automatic-closing fire door assemblies shall be self-closing in accordance with NFP A80 716.5.9.2
- Automatic-closing shall be by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to smoke detector or hold-open device, and shall not have more than 10-second delay before the door starts to close after the smoke detection is actuated 716.5.9.3
- Vertical sliding or rolling steel fire door in openings through with pedestrians travel shall be heat activated or activated by smoke detectors with alarm verification 716.5.9.4

- Rolling fire shutter shall include approved automatic-closing devices — 716.5.11

B. Fire window assembly fire protection rating
   - 1-hour fire-rated exterior wall requires a minimum ¾-hour window assembly protection — Table 716.6

12. Interior Finishes

A. Interior wall and ceiling finish material shall meet classification for Flame Spread and Smoke Developed Index — 803.1.1

B. Interior floor finish and floor covering material shall meet classification in accordance with NFPA 253 — 804.2

13. Means of Egress Continuity

- Path of egress travel along a means of egress shall not be interrupted by any building element. Obstructions shall not be placed in the required width of a means of egress. The required capacity of a means of egress systems shall not be diminished along the path of egress travel. — 1003.6

14. Means of Egress Width

- Stairways — Total occupant load served x 0.3 — 1005.3.1
- Other egress components — Total occupant load served x 0.2 — 1005.3.2
- Capacity of means of egress required from any story shall not be reduced along the path of egress travel until arrival at public way — 1005.4
- Where more than one exit, or access to more than one exit, is required, the means of egress shall be configured such that the loss of any one exit, or access to one exit, shall not reduce the available capacity to less than 50 percent of required capacity — 1005.5
- Where the means of egress from stories above and below converge at an intermediate level, the capacity of the means of egress from the point of convergences shall not be less than the sum of the required capacities from the two adjacent stories — 1005.6
- Doors, when fully opened, shall not reduce the required width by more than 7 inches. Doors in any position shall not reduce the required width more than one-half — 1005.7.1
- Handrail projections shall be in accordance with provisions of Section 1013.8. Other nonstructural projections such as trim and similar decorative features shall be permitted to project into the required width a maximum of 1 ½ inches on each side — 1005.7.2

15. Means of Egress Illumination

Means of egress illumination level shall not be less than 1 foot-candle at the walking surface — 1006.2

Emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. In the event of power supply — 1006.3

failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. Aisles and unenclosed egress stairway in rooms and spaces
2. Corridors, interior exit stairways, and ramps and exit passageways
3. Exterior egress components at other than their levels of exit discharge until exit discharge is accomplished
4. Interior exit discharge elements, as permitted by Section 1027.1
5. Exterior landings as required by Section 1008 for exit discharge doorways

16. Accessible Means of Egress

- Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required from any accessible space, each accessible portion of the space shall be served by accessible means of egress. — 1007.1, 1015.1, 1021.1

17. Means of Egress Doors

A. Doors — 1008.1
- Means of egress doors shall be readily distinguishable from the adjacent construction and finishes
- Mirrors or similar reflecting materials shall not be used
- Shall not be concealed by curtains, drapes, decorations or similar materials

B. Size of Doors — 1008.1.1
- Minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches
- Maximum width of a swinging door leaf shall be 48 inches nominal
- Height of door openings shall not be less than 80 inches

C. Door Swing — 1008.1.2
- Egress doors shall be of the pivoted or side-hinged swinging type
- Doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons

D. Panic and Fire Exit Hardware — 1008.1.10
- Doors serving rooms or spaces with an occupant load of 50 or more in a Group A occupancy shall not be provided with a latch or lock unless it is panic hardware or fire exit hardware

18. Exit Signs

- Not required in rooms or areas requiring only one exit 1011.1
- Required at exit, exit access doors, along the path of egress travel to exits, and within exits (no more than 100-ft. apart) 1011.1
- Exit signs shall be internally or externally illuminated 1011.3
- Tactile (raised character and Braille) signs shall be required at locations indicated per code 1011.4
- Internally illuminated exit signs shall be illuminated at all times 1011.5
- Graphics shall be minimum 6-inch tall letters with ¾-inch stroke 1011.6.1
- Externally illuminated shall be not less than 5 foot-candles at face of exit sign 1011.6.2
- Illumination shall be on emergency power for not less than 90-minute 1011.6.3

19. Guards

- Required at the edge of Aprons that are not actively being used for Maritime Use
- Shall be located along open-sided walking surfaces that are elevated more than 30 inches to the floor or grade below 1013.2
- Shall not be less than 42 inches high, measured above walking surfaces, stair nosing and ramp surface 1013.3
- Shall not have openings that allow passage of a 4-inch sphere 1013.4

20. Exit Access

A. Egress through intervening space is allowed when: 1014.2
   - Adjoining room and area served are accessory to one or the other
   - Intervening room of same or lesser hazard occupancy group for S, or F
   - Shall not passed through room can be locked
   - Shall not pass through kitchen, storage room, closet or similar spaces

B. Each tenant space shall be provided with access to required exits without passing through adjacent tenant spaces 1014.2.1

C. Common path of egress travel within a tenant space shall meet the requirements of 1014.3 1014.3

21. Exit and Exit Access Doorways

A. Space with one exit or exit access doorway Table 1015.1

Occupancy:	Maximum Occupant Load:
A, B, F, M	≤ 49 occupant load
S	≤ 29 occupant load

B. Three or more exits or exit access doorways 1015.1.1

Occupant load:	Number of exits or exit access doorways:
50 to 500	2
501 to 1000	3
Great than 1,000	4

C. When 2 or more exits or exit access doorways are required, they shall be separated by 1/3 the diagonal distance of the space (in building with automatic fire sprinkler) 1015.2.1

22. Exit Access Travel Distance

Maximum length of travel measured from most remote point within a story along natural and unobstructed path of egress to an exterior exit door, and entrance to an exit enclosure, an exit passageway, a horizontal exit, an exterior exit stairway or an exterior exit ramp

Occupancy:	Pier 9 is equipped with Automatic Fire Sprinkler:	Table 1016.2
A, F-1, M, S-1	250 ft.	
B	300 ft.	
F-2, S-2	400 ft.	

23. Corridors

A. For Occupancies A, B, F, M, S, U, corridors shall be fire-resistance rated in accordance with Table 1018.1 unless protected by automatic sprinkler system Table 1018.1

B. Minimum corridor width, per 1005, but no less than indicated in Table 1018.2 1018.2

C. Where more than one exit or exit access doorway is required, the exit access shall be arranged such that there are no dead ends in corridors more than 20 feet in length 1018.4

Exceptions:

- Group B, F, M, S when building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet
- Dead-end corridor shall not be limited in length when the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor

24. Interior Exit Stairways and Ramps

A. Interior exit stairways and ramps which are part of the exit component shall lead directly to exterior of building 1022.1

B. Interior exit stairway and ramp shall be enclosed with fire barrier 1022.2

- ≥ 1-hour fire-resistance rating connecting < 4 stories
- Shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours

25. Exit Passageway

A.	An exit passageway shall not be used for any purpose other than as a means of egress	1023.1
B.	Minimum width of passageways shall be determined as specified in Section 1005.1, but shall not be less than 44 inches, except serving occupant load of less than 50 shall be shall not be less than 36 inches	1023.2
C.	Exit passageway enclosures shall have wall, floors and ceilings fire-resistance rating not less than 1 hour fire barrier, and not less than that required for any connecting interior exit stairway or ramp	1023.3
D.	Exit passageways on the level of exit discharge shall terminate at an exit discharge. Exit passageways on other levels shall terminate at an exit	1023.4

26. Horizontal Exits 1025

Due to the rarity of horizontal exits on piers, a pre-application meeting shall be required prior to final design

27. Exit Discharge

A.	Exits shall discharge directly to exterior of building	1027.1
B.	Exit discharge shall be at grade or direct path of egress travel to grade	
C.	Exit discharge shall not re-enter building, unless through a rated exit passageway	
D.	Because no standard exists for finger pier exterior aprons, technical requirements of egress courts shall be applied to the extent possible	1027.3
E.	Exterior aprons/egress court width shall be determined as specified in Section 1005.1, but such width shall not be less than 44-inch wide with an obstructed height of 7-ft. minimum	1027.4.1
F.	Where an exterior apron/egress court is less than 10-ft. in width, exterior walls along the apron shall have not less than 1-hour fire-resistance rated construction for a distance of 10-ft. above the court floor	1027.4.2
G.	Openings within exterior walls shall have a fire protection rating of not less than ¾-hour. The use of sprinklers as an alternative method in lieu of fire-resistive construction and the use of opening protective. Approval of AHJ is required.	
H.	Where an exterior apron/egress court meets the required width per Section 1005.1, and is also greater than 10-ft. in width, fire-resistive construction and protected openings is not required	
I.	Exit discharge shall provide a direct and unobstructed access to a public way	1027.5

5

Proposed Exiting Diagrams

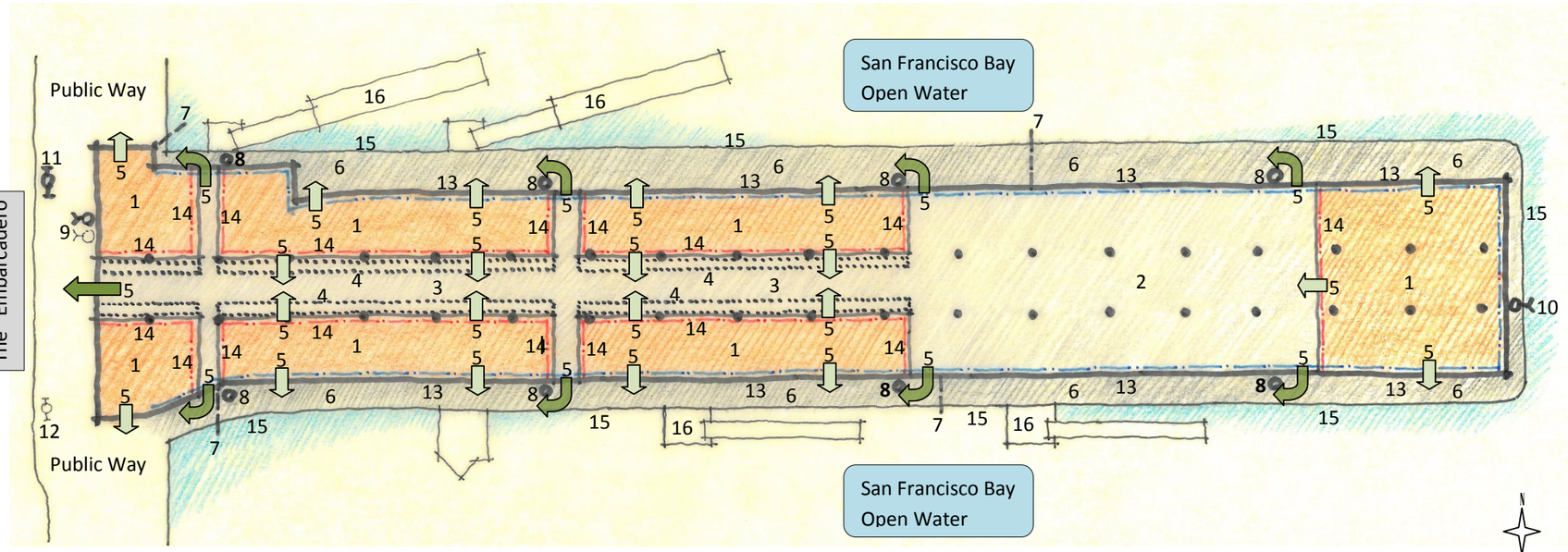
Pier with Center Drive Aisle and Parking (Modeled on Pier 9)

Pier with Fully Built-Out without Parking (Modeled on Pier 19)

5. Proposed Exiting Diagrams

Proposed Exiting Diagram – Pier with Center Drive Aisle and Parking (modeled on Pier 9)

The large ground floor is divided into individual compartment of tenant spaces ranging from 7,000-sf. to 9,000-sf., separated by 1-hour fire-resistance rating fire barriers. Tenant spaces on partial 2nd stories, at the Bulkhead and the Pier end, need to have fire separation from the tenant spaces on the 1st story by a 1-hour fire-resistance horizontal assembly. Fire separation is also required between the drive aisle and the tenant spaces with 1-hour fire-resistance fire barriers, with self-closing and self-latching fire doors. All compartments of tenant spaces have exits into the central access aisle, as well as exits directly onto the exterior egress aprons. Consolidated parking spaces into a designated area with provision of exterior roll-up doors for exhaust ventilation.



Exiting Diagram

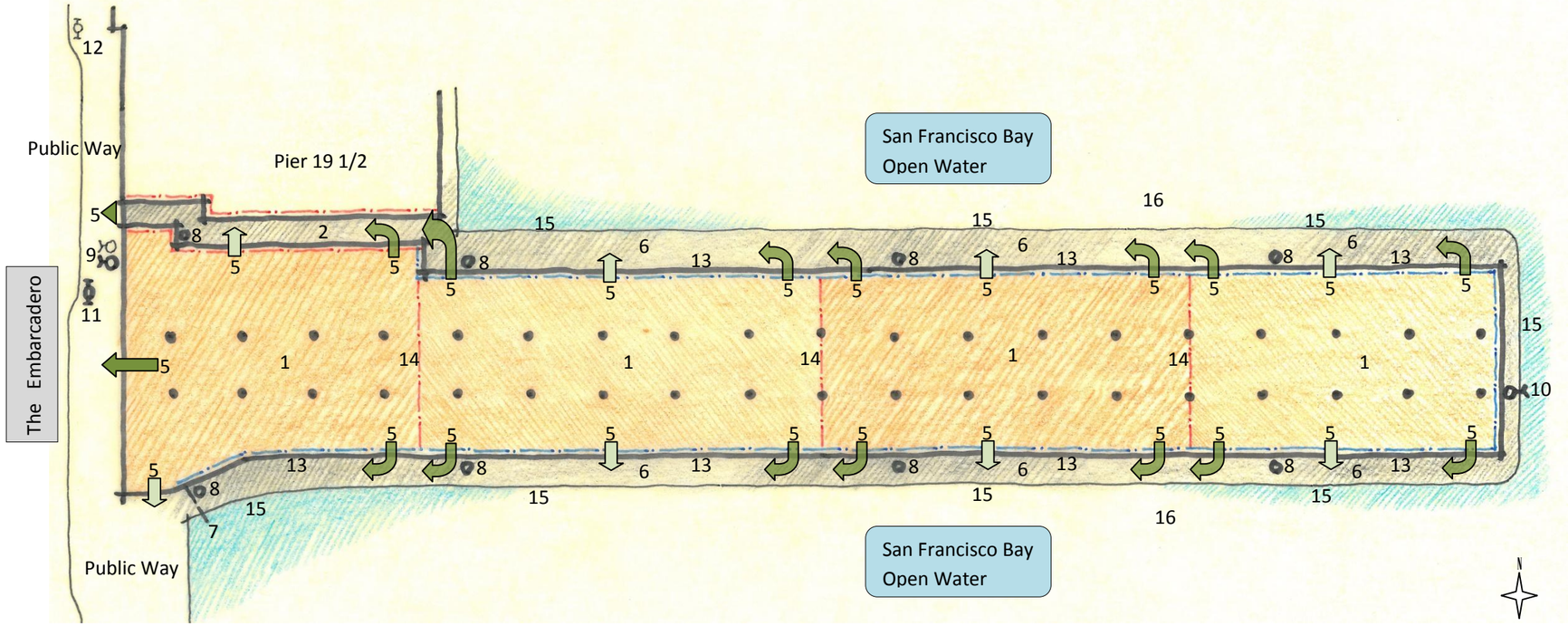
Figure 5.1

Key Notes:

1	Existing and new tenant spaces (7,000 to 9,000-sf per compartment)
2	Designated parking area with mechanical exhaust ventilation
3	Existing central drive aisle 17-ft wide
4	New 5-ft wide walkways with bull-rails protection (bollards at aisles)
5	Maintain existing and provide new egress passage from drive aisle and tenant spaces
6	Existing egress aprons
7	Existing maritime security fencing. Exit discharge gate with panic hardware shall be provided and maintained
8	New Class I standpipe (4) outlets each side, (8) total (250-ft max. distance)
9	Existing FDC with (2) 3-inch hose connections, (2) 3-inch hose connections for new Class I standpipe hose valves shall be provided
10	New FDC (4) or (6) 3-in hose connections, located for convenient hook-up by fireboat as determined by AHJ
11	New city low-pressure fire hydrant as required by AHJ
12	Existing bay suction fire hydrant
13	Provide new 1-hour fire-rating to existing exterior wall up to 10-ft. in height, new pendant quick-flow fire sprinkler for opening fire protection, and new 60-minute exterior doors and steel roll-up doors, as determined by AHJ based on occupancy and egress width
14	New 1-hr fire separation between tenant/tenant & tenant/drive aisle when required by occupancy separation per Table 508.4
15	New 42-inch high guardrails at non-active maritime use aprons
16	Existing working dock with active maritime use with security gate with bull rails or 42-inch high guardrails

Proposed Exiting Diagram – Pier Fully Built-Out without Parking (modeled on Pier 19)

The large ground floor is divided into four (4) individual compartments of tenant spaces ranging from 22,000-sf. to 24,000-sf., separated by 1-hour fire-resistance rating fire barriers to create compartments that meet current requirements for allowable area based on classification and use. The total occupant load of the entire Pier building shall not exceed 476 persons to negate seismic upgrade. If the building total occupant load exceeds 476 persons, then seismic upgrade is required for the entire building structure. Each compartment of tenant spaces has independent exits directly onto the exterior egress aprons.



Exiting Diagram

Figure 5.2

Key Notes:

1	Four (4) tenant spaces (22,000-sf. to 24,000-sf. per compartment)
2	New exit passageway with 1-hr fire-rated and sprinklered to lead to exit discharge
3	Not used
4	Not used
5	Proposed exits from tenant spaces
6	Existing egress apron (repair required to north and east sides)
7	Exit discharge gate with panic hardware shall be provided and maintained
8	New Class I standpipe (4) outlets each side, (8) total (250-ft max. distance)
9	Existing FDC with (2) 3-inch hose connections, (2) 3-inch hose connections for new Class I standpipe hose valves shall be provided
10	New FDC (4) or (6) 3-in hose connections, located for convenient hook-up by fireboat as determined by AHJ
11	New city low-pressure fire hydrant as required by AHJ
12	Existing bay suction fire hydrant
13	Provide new 1-hour fire-rating to existing exterior wall up to 10-ft. in height, new pendant quick-flow fire sprinkler for opening fire protection, and new 60-minute exterior doors and steel roll-up doors, as determined by AHJ based on occupancy and egress width
14	New 1-hr fire separation between tenant/tenant when required by occupancy separation per Table 508.4
15	New 42-inch high guardrails at non-active maritime use aprons
16	Working dock with active maritime use with security gate with bull rails or 42-inch high guardrails, where required

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Appendix A

Code Interpretation No. 1

Code Interpretation No. 2

Port of San Francisco

Code Interpretation No.1-Rev.1

January 1, 2014

Subject: Application of 2013 Port Building Code for Proposed Alterations of Finger Piers
****This code interpretation replaces Code Interpretation No. 1 dated November 1, 1996.*

The following guidelines shall be used in conjunction with other provisions of the 2013 Port Building Code ("PBC") in applying Chapter 3 Use and Occupancy Classification to proposed alterations to existing finger piers. Any building alterations shall be determined based on the most current PBC.

1. Any building alterations shall have occupancy, and change of occupancy, evaluated under the current code for the purposes of finding an analogous occupancy classification. Historically, the finger pier buildings typically functioned as warehouses where break bulk cargo was loaded and unloaded by laborers, seamen and stevedores to and from ships, rail cars, and trucks. Cargo classified as moderate or low hazard were stored for transitory periods. The original occupancy classification is established as break bulk use with accessory office occupancy. The historic use is considered comparable to the 2013 PBC as Low-hazard storage Group S-2 in Section 311.

2. Because the PBC Chapter 10, Table 1004.1.2, does not address break bulk use of piers, piers shall be understood to have an Occupant Load Factor (OLF) of 1 person to every 250 square feet when calculating the original OLF. The Port established this load factor using the historical data available on the number of individuals employed in break bulk cargo operations.

3. To constitute as a "Substantial Change" see PBC Section 3404. Chain link partitions shall not be considered as a factor in any determination of "Substantial Change". The applicant shall demonstrate to the Port the percentage of work that has substantially changed when submitting plans for building alteration.

Uday Prasad

Uday Prasad, Interim Chief Harbor Engineer

Revised 11/07/2013

Port of San Francisco

Code Interpretation No.2-Rev.1

January 1, 2014

Subject: Application of 2013 Port Building Code Section 202 for Definition of Yard at Finger Piers
****This code interpretation replaces Code Interpretation No. 2 dated December 3, 1997.*

The following guideline shall be used in conjunction with other provisions of the 2013 Port Building Code ("PBC") in applying Section 202, definition of Yard at the apron to the water and between piers for existing finger piers.

PBC Section 202 defines Yard as "An open space, other than a court, unobstructed from the ground to the sky, except where specifically provided by this code, on the lot on which a building is situated". Because this language does not specifically include open water areas, and such areas do meet the intent of the code in that the resulting separation between finger pier structures is obtained. Therefore, it is the Port's policy to allow open water areas to be included within the definition of what constitutes a yard.

Exception: For the purpose of establishing compliance with 2013 PBC, Section 507 Unlimited Area Buildings, the required public ways and yards of not less than 60 feet in width shall not include aprons, stringers or marginal wharf areas.

Aprons, stringers and marginal wharf areas are integral to the pier structure, and shall be classified as either balconies or exterior balconies.

The width of aprons, stringers and marginal wharf areas that are maintained as public ways shall not be included in the measurement of the required 60 feet minimum width.

Uday Prasad, Interim Chief Harbor Engineer

Revised 11/07/2013

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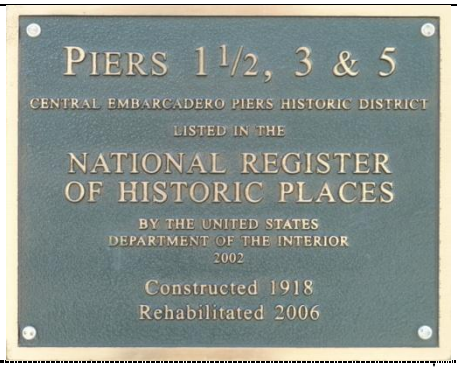
Appendix B

Photographic Documentation of Existing Conditions

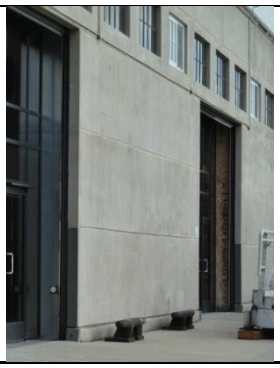
7. Existing Conditions

Photographic Documentation

The following photographs document the existing condition of the fire protection, exterior wall and apron, and identify remedial measures to create a safe means of egress for the building occupant in an event of emergency.



Finger Pier: Historic Building 4.1.1



Shed existing pre-cast concrete panels, resembling 50-minute fire-resistance rating. New wall to be 60-minute fire-resistance rating.

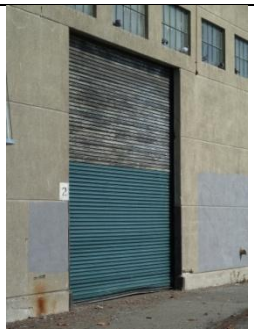
Shed Pre-Cast Concrete Panel 4.2.1

Bulkhead wood framing. New wall to be 60-minute fire-resistance rating.

Bulkhead Wood Framing 4.3.1

Provide listed assembly and label of exit fire door in accordance with Section 716.

Exterior Exit Door 4.4.1

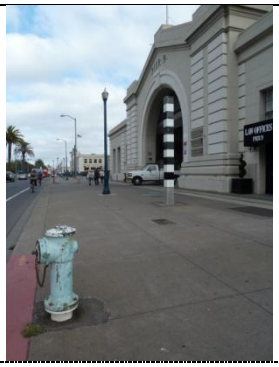


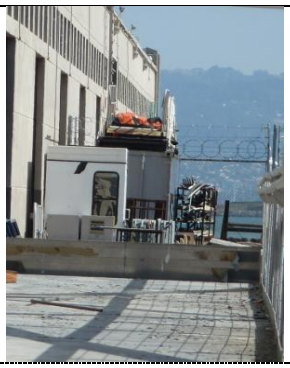
Provided listed assembly and oversized overhead label or certificate of inspection for roll-up doors, in accordance with Section 716.

Exterior Roll-Up Door 4.4.2

Ventilation required for motor vehicle related occupancy.

Parking in Pier 9 – Enclosed Garage 4.5.1

 Existing steel columns that support of the concrete pre-cast panels may require full-height fire protection.	 Provide fire-resistance caulking for through penetrations and joints, per Sections 714 & 715, respectively.
Column Support for Ext. Wall 4.6.1	**Penetrations & Joints in Ext. Wall** 4.6.2
 Opening shall be protected with either by fire-rated glazing or fire sprinkler.	 Provide pendant head fire sprinkler at glazing.
Exterior Glazing along Apron 4.6.3	**Fire Sprinkler Pendant** 4.6.4
 Fire hose cabinets shall be replaced with 3-inch Class I hose connections on exterior within 150 feet of all areas of building, where required by AHJ.	 Upgrade or replace existing automatic fire sprinkler systems in accordance with 2013 NFPA 13.
Fire Hose Cabinet 4.6.5	**Fire Department Connections (FDC)** 4.6.6
 Bay water suction hydrant for salt-water drafting, supplemented by existing low-pressure city fire hydrant in front of Pier 15.	 Low-flow city fire to supply Class I hose connection.
Bay Fire Hydrant 4.6.7	**City FH for Class I Hose Connection** 4.6.8

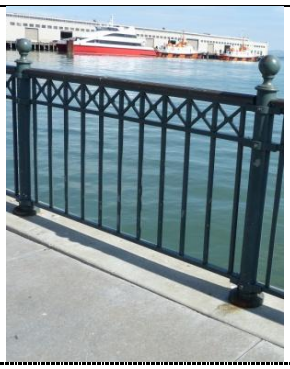


Remove all barriers to provide unobstructed egress path of travel, in accordance with Section 1003.

Barriers on Apron 4.7.1

Provide means of egress illumination in accordance with Section 1006.

Exterior Lighting along Apron 4.7.2

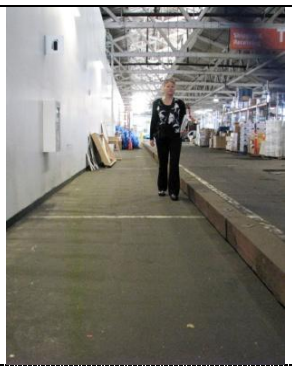


Guardrails will be provided along apron water-edge at non-active maritime use apron, in accordance with Section 1013.

Guards at Water-Edge 4.7.3

Cleats and bull rails along active maritime use apron.

Active Maritime Use Apron 4.7.4



Pedestrian walkway in central aisle with bull rails protection.

Pedestrian Walkway in Central Aisle 4.7.5

Benches located against building to maintain egress path of travel away from building.

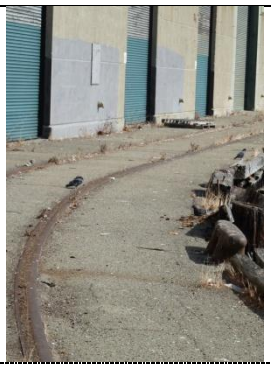
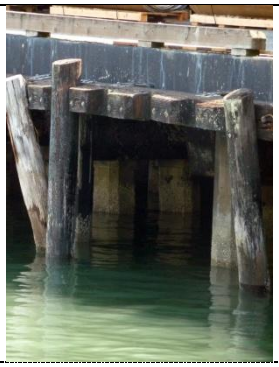
Bench Location on Apron 4.7.6

Storefront at Bulkhead archway with egress doors.

Storefront Egress Doors 4.7.7

Provide means of egress door and gate size, in accordance with Section 1008.

Exit Discharge at Public Way 4.7.8

 Remove all barrier and surface paving to provide accessible means of egress, in accordance with Section 1007.	 Apron walking surface repaved for compliance with accessible means of egress in accordance with Section 1007.
Apron Walking Surface (before) 4.7.9	**Apron Walking Surface (after)** 4.7.10
 Aprons that have been rated unsafe or restricted shall be repaired.	 Sign indicating load limits shall be posted at apron entrances.
“Unsafe” and “Restricted Use” 4.7.11	**Apron Substructure Load Limit** 4.7.12
 Deteriorated apron substructure shall be repaired to safely function as means of egress component.	 Apron substructure repaired to provide a safe means of egress.
Apron Substructure (before) 4.7.13	**Apron Substructure (after)** 4.7.14