SFFD| New Fire Boat Station 35 at Pier 22.5

PRESENTATION TO FIRE COMMISSION - SEPTEMBER 28, 2016
CITY HALL, 1 DR. CARLTON B. GOODLETT PLACE, ROOM 400, SAN FRANCISCO, CA 94102

Agenda:

- ESER 2014
- Project Scope
- Preliminary Schedule

ESER 2014 BACKGROUND

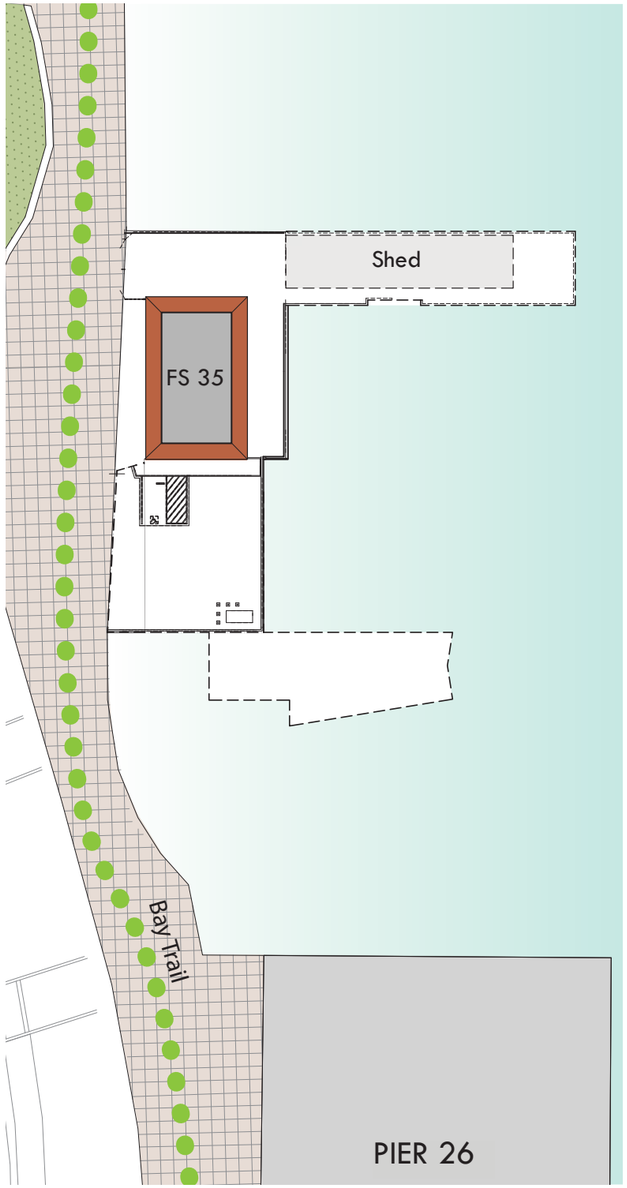
$400M General Obligation Bond authorized in June 2014 with approval by 79% of voters

• Neighborhood Fire Stations	$85M
• Emergency Firefighting Water System	$55M
• District Police Stations and Infrastructure	$30M
• Motorcycle Police and Crime Lab	$165M
• Medical Examiner Facility	$65M

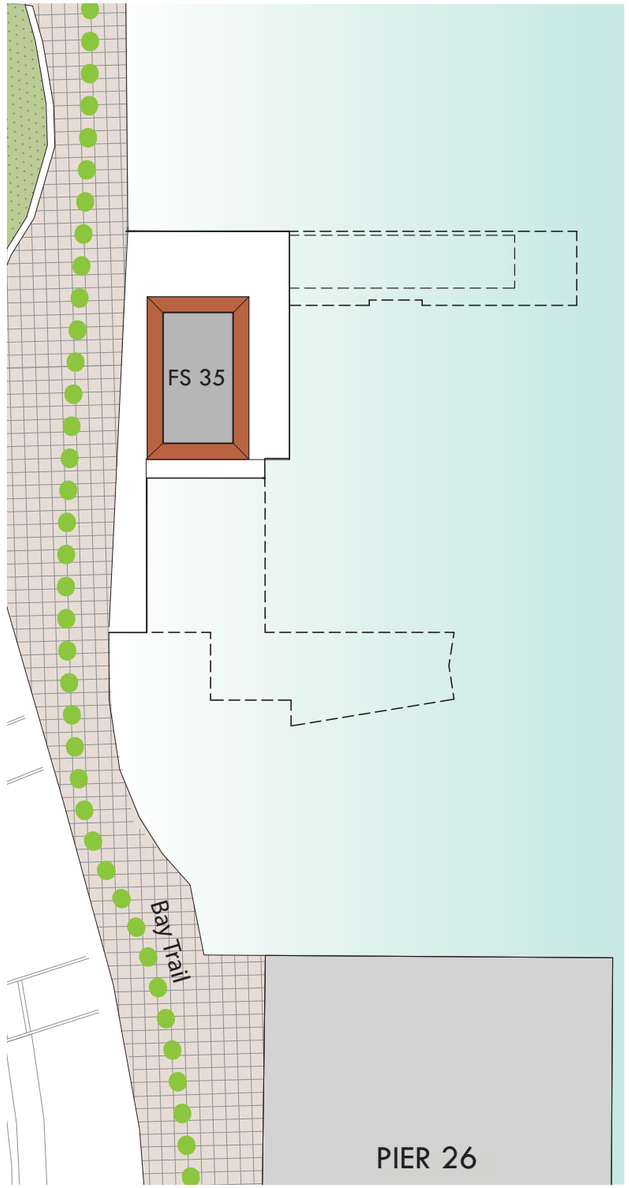
AERIAL PHOTO OF EXISTING SITE

photo credit: COWI

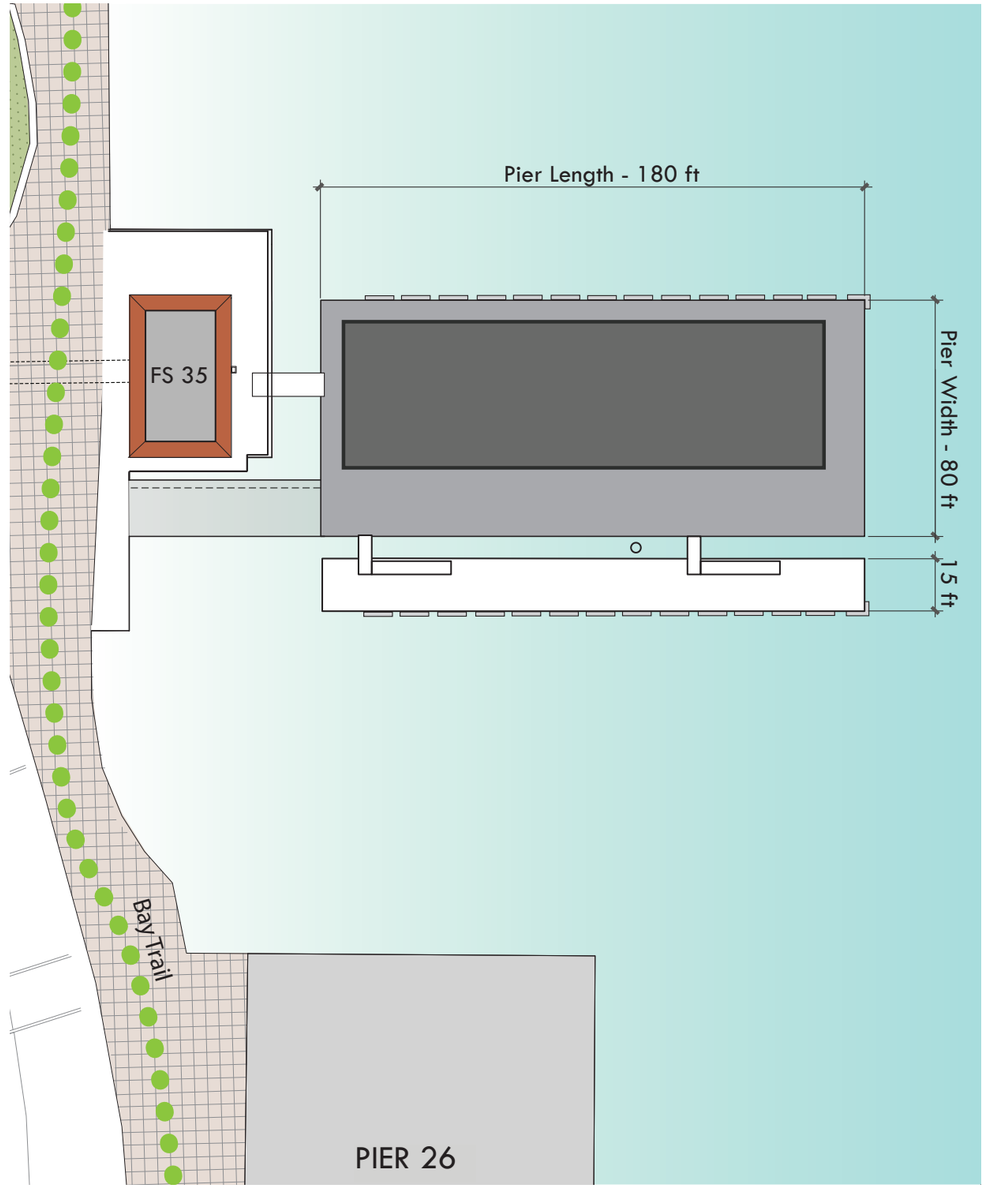
COMPARISON: SHADOW STUDY ON BAY: EXISTING - TO BE DEMOLISHED - PROPOSED NEW



- Existing Pier/Dock/Parking: 14,820 GSF



- Remaining Pier (After Demo): 7,000 GSF



- Proposed New Pier*: 19,400 GSF
- Existing Pier Remaining: 7,000 GSF
- Total Shadow (Remaining + New): 26,400 GSF

* includes:
Barge or Pier = 14,400 sf; Ramp = 2,000 sf; Float (200'x15') = 3,000 sf
for total shadow of all three NEW components on the Bay

PROGRAMMING - EXISTING VS. NEW FACILITY

EXISTING FACILITY (Historic and Shed) 6,100 gsf

Dormitory (inadequate)
Kitchen
Dining/Day Room
Lockers/Showers/Toilets (single sex)
Fitness
Storage
Workshop

NEW PROPOSED FACILITY 16,880 gsf

Existing Program (Resized to correct Code and Program Requirements)

Dormitory (adequately sized)
Officers' Quarters
Kitchen
Dining Room
Lockers/Showers/Toilets (separate genders)
Day Room
Fitness + Study Rooms
Storage
Circulation and Gross Factor to accomodate walls, structure, and mechanical

Existing Offsite Program

Jet Skis
Rescue Boats
Port Response Vehicles
Oil Containment Room
Fire Fighting Hose
Fire Fighting Foam
Scuba/Tank Filling
Specialty Gear/Rescue Gear Storage

Fire Department Program Requirements

Fireboat Working Area
Ambulance Access out of Public Viewing
Patient area
Cranes To Raise/Lower Small Watercraft
Proper Waste Separation
Proper Decontamination
Marine EOC
Wet suit + life jacket storage
Workshop / Boson's Room /Hotwork room
Extractor/ Dryer Room
Decontamination Room
Safe Fuel Storage
Public Accessable Toilet
Elevator + Stairs (Proper Handicap Access and Exiting)
Circulation and Gross Factor to accomodate walls, structure, and mechanical

EXISTING CAPACITY

Existing Station 6,100 gsf

Assets

- Two Fire Boats
- One Fire Engine
- 7 SFFD Staff “24/7”

Liabilities

- Deteriorated Berthing Areas
- No Environmental Response Equipment Storage, e.g. Oil Spill Boom
- No capacity for: Jet Skis, Small Craft Rescue Equipment, e.g. Small Rescue Watercraft
- No Storage Areas
- No Rescue Unloading Areas
- No Changing Facilities for Female Firefighters, Engineers, or Pilots

PROPOSED CAPACITY

New Station 16,880 gsf

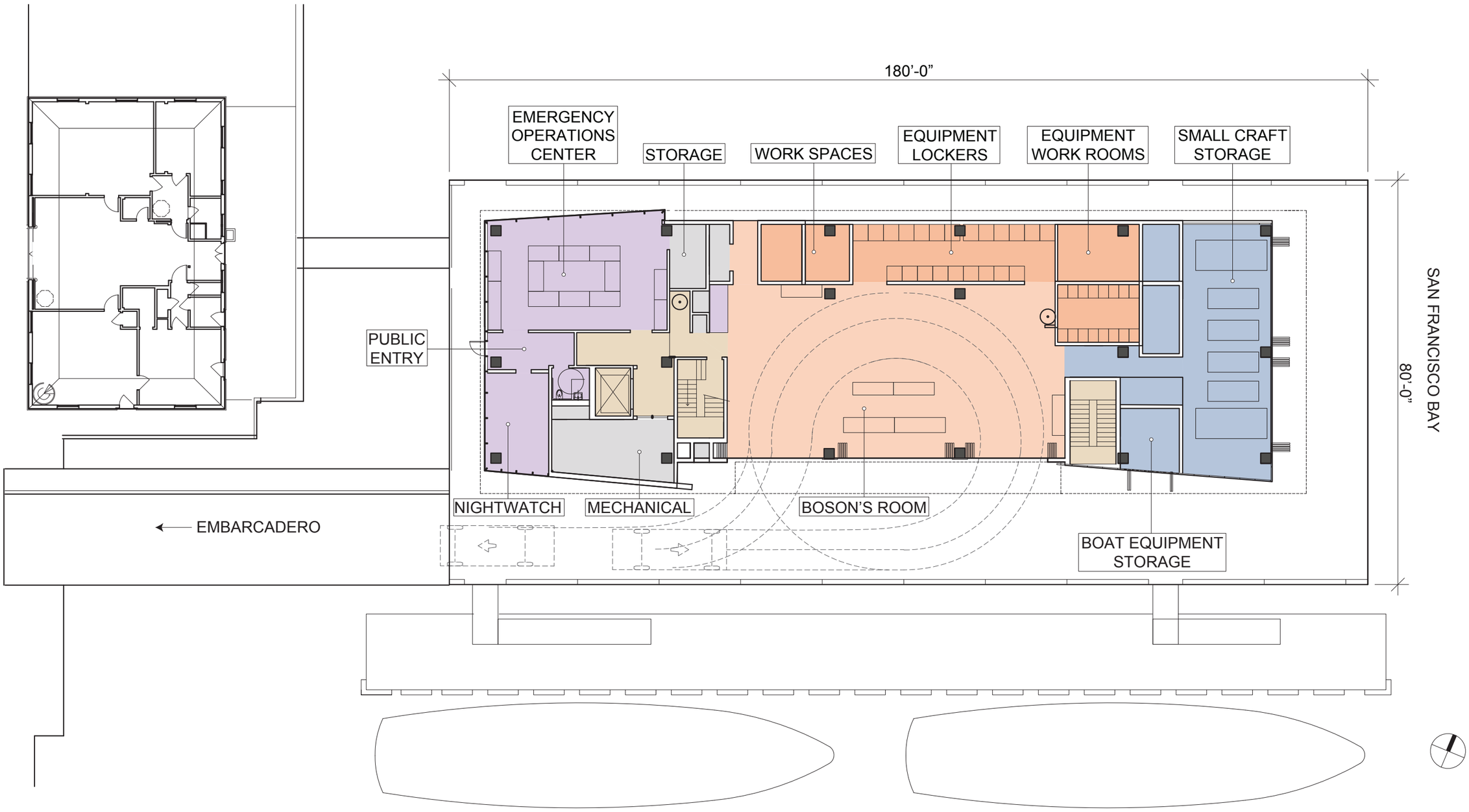
Assets

- Two Fire Boats
- One Fire Engine
- 12 SFFD Staff “24/7”

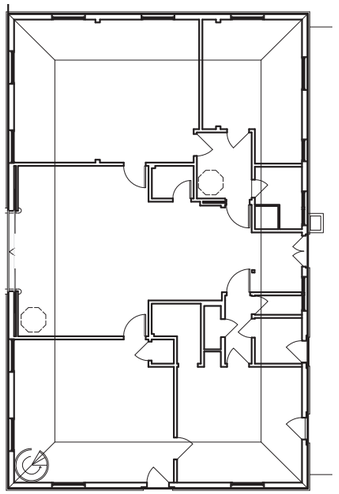
Features

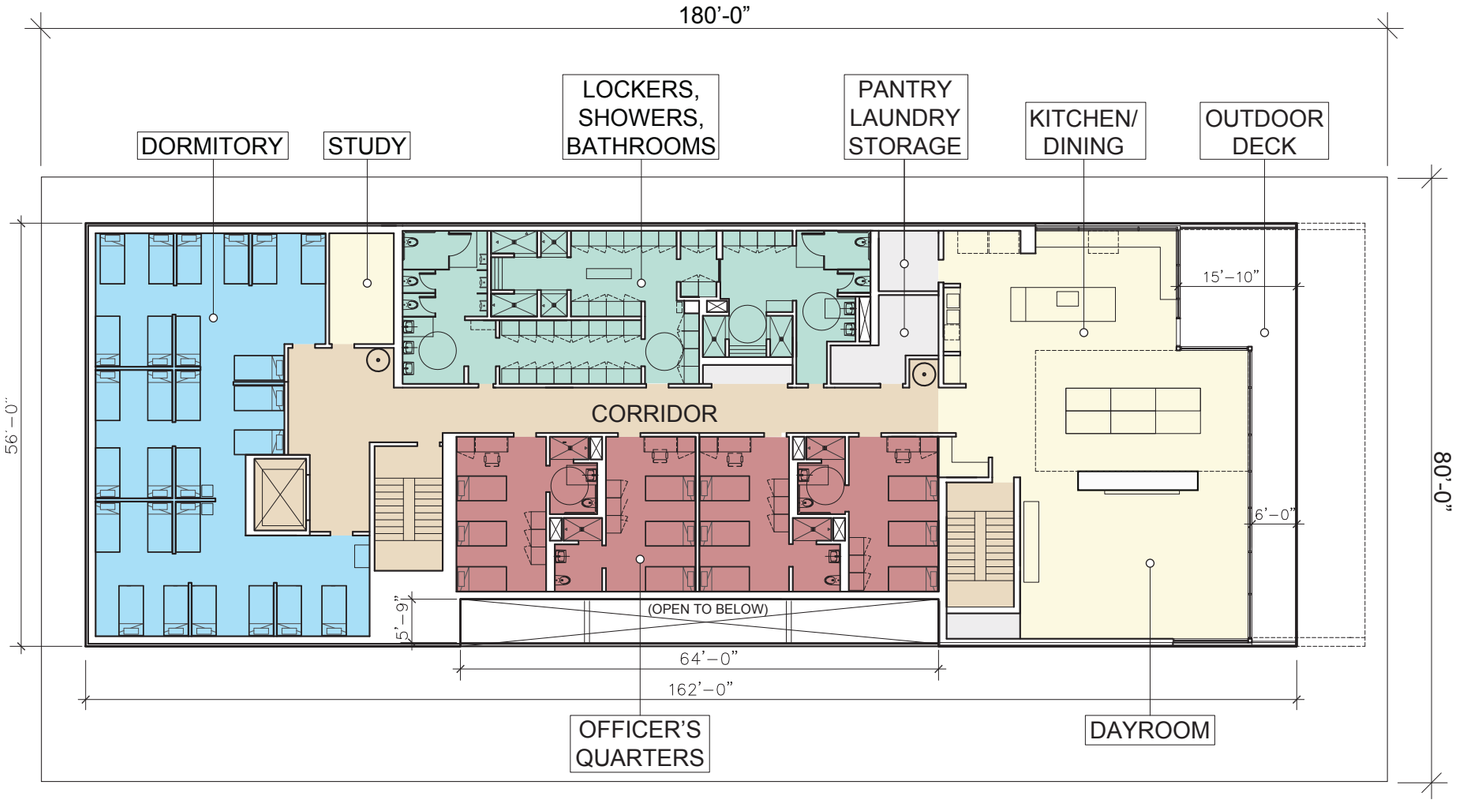
- Addresses all liabilities of existing facility
- Construction to Essential Facility Standards
- Storage Areas Consolidated for Emergency Response Equipment
- Ambulance Access
- Equipment for Boat Access, Rescue, and Loading and Unloading

FIRST FLOOR PROGRAMMING



SECOND FLOOR PROGRAMMING



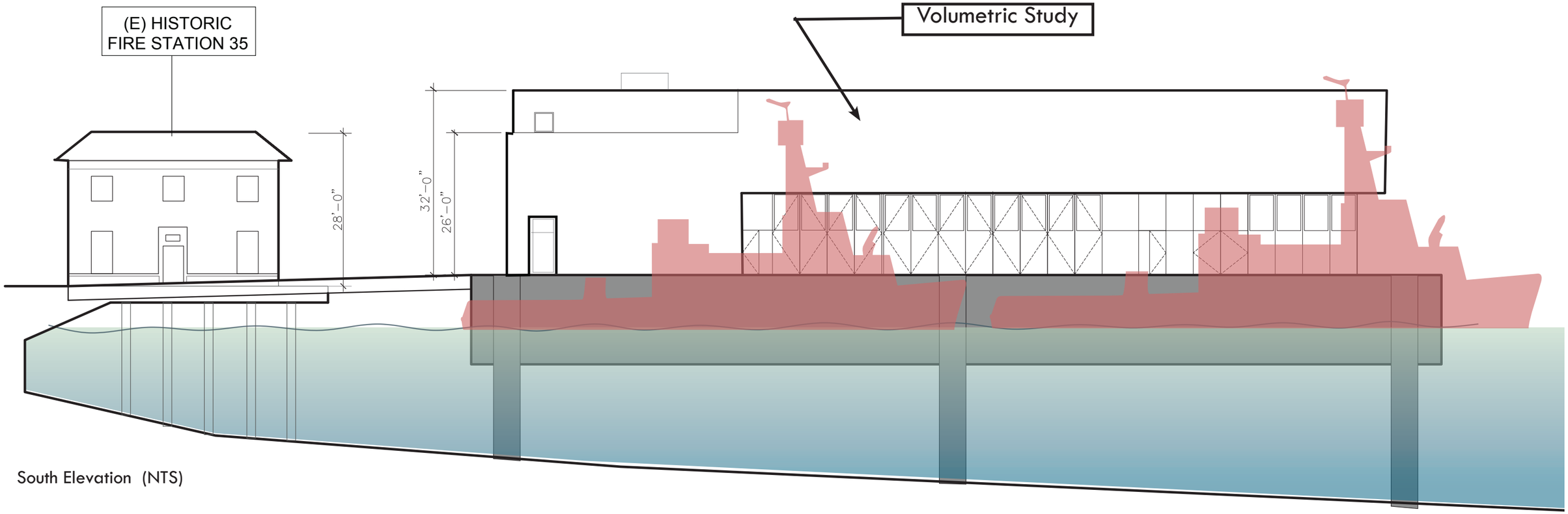


SCALE: 1/16” = 1’-0”

SAN FRANCISCO FIRE DEPARTMENT - FIRE VESSELS

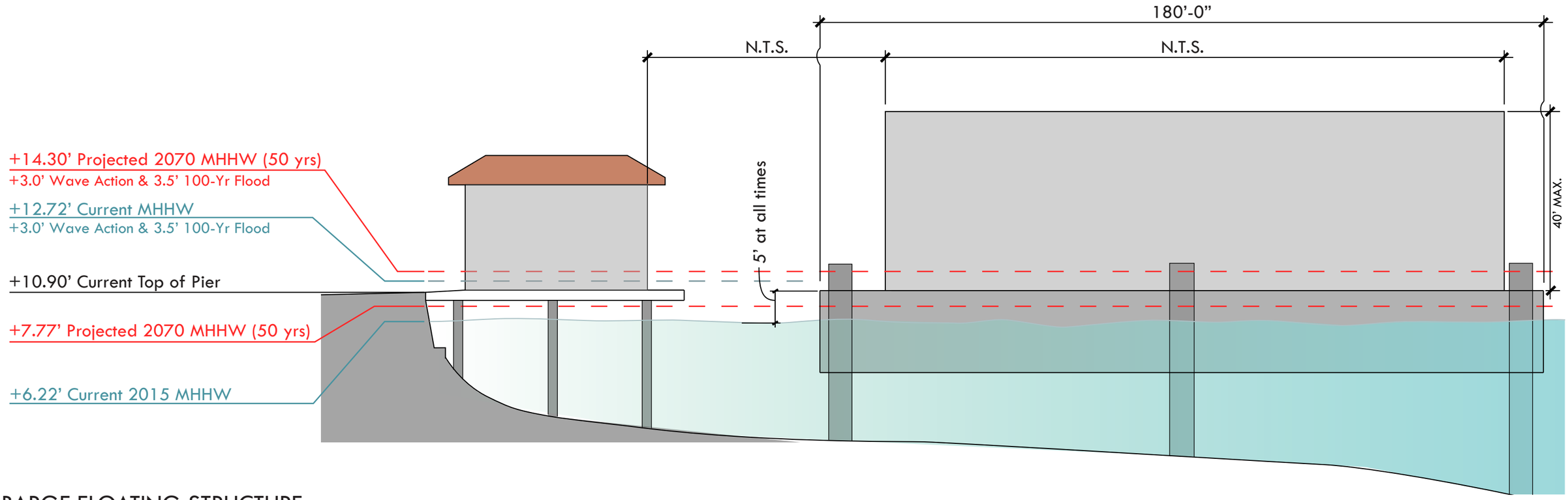
	Guardian	Phoenix	Fireboat 3
			
Builder	Yarrows, Ltd., Esquimalt, British Columbia	Hugh F. Munroe of Plant Shipyard, Alameda, CA	Vigor Industrial, Seattle WA
Year	1951	1955	2016
Type of vessel	Fireboat	Fireboat	Fireboat
Displacement	185 long tons	146 tons	260 long tons (300 GRT ITC)
Length overall (LOA)	88 ft.	89 ft.	88 ft.
Beam	21’6”	19’6”	26’
Freeboard	fwd- 9’. Aft- 5’4”	fwd- 9’. Aft- 5’4”	fwd- 18’. Aft- 15’
Air draft	42’	30’	38’

ELEVATION OF EXISTING HISTORIC FS 35 + NEW FIRE BOAT STATION



South Elevation (NTS)

SEA LEVEL RISE



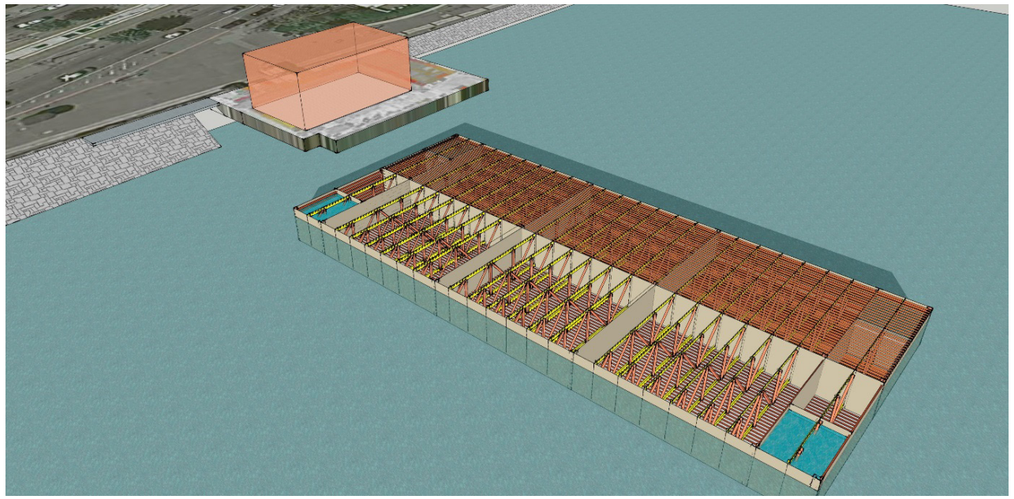
BARGE FLOATING STRUCTURE

Marine Engineering: PROS + CONS OF THREE PIER OPTIONS

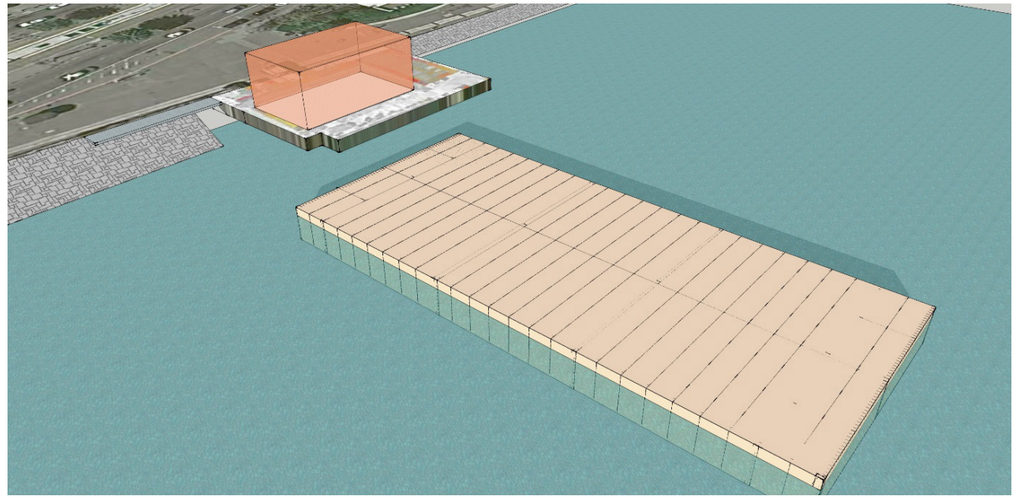
Type of Pier	Pros	Cons
FIXED PIER Pier Construction = $6.4 M	Build on site	Building roof will be higher for Planning review
	More contractor participation due to conventional construction	Pier and building will be subjected to high seismic loading
	No dredging and sheet pile required	Need to place pier higher than sea level rise prediction
	Residents in the building not subject to motion.	Steel piles and beams require corrosion protection and inspection for life of pier
		Require impact pile driving. Environmental issue, limited work window.
FLOATING STEEL PIER Pier Construction = $6.3 M	Building roof will be lower for planning review	Limited contractors could do the project
	No dredging and sheet pile required	Need special treatment coating and sacrificial steel for corrosion protection for life of the project
	Adaptable to sea level rise	Residents in the building will be subject to motion of the pier
	Limited impact from Seismic activity	Utilities to the shore will need flexible joints
	Less environmental impact, fewer piles to drive.	Access ramp will need to adjust per tides
	Separate boarding float may not be required	Require periodic dive inspection
		Limited locations in Bay area where it can be built. Need to be transported to site.
FLOATING CONCRETE PIER Pier Construction = $8.6 M	Building roof will be lower for planning review	Limited contractors could do the project
	More durable against corrosion and deterioration	Need epoxy coated rebar for corrosion protection for life of the project
	Adaptable to sea level rise	Residents in the building will be subject to motion of the pier, less than steel floating pier.
	Limited impact from Seismic activity	Utilities to the shore will need flexible joints
	Less environmental impact, fewer piles to drive.	Access ramp will need to adjust per tides
	Separate boarding float may not be required	Require dredging and sheet pile
		Limited locations in Bay area where it can be built. Need to be transported to site.

Marine Engineering: STEEL BARGE

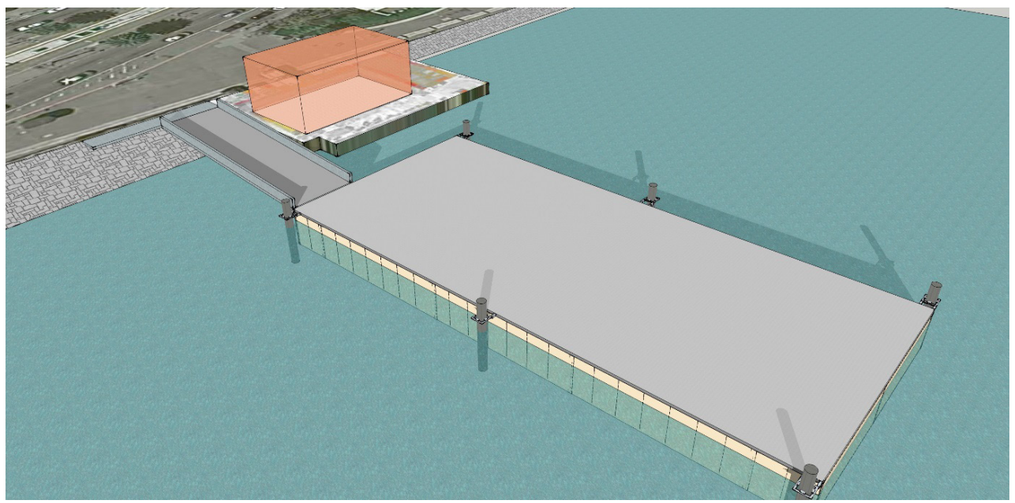
Steel Barge



Steel Barge with Deck Slab



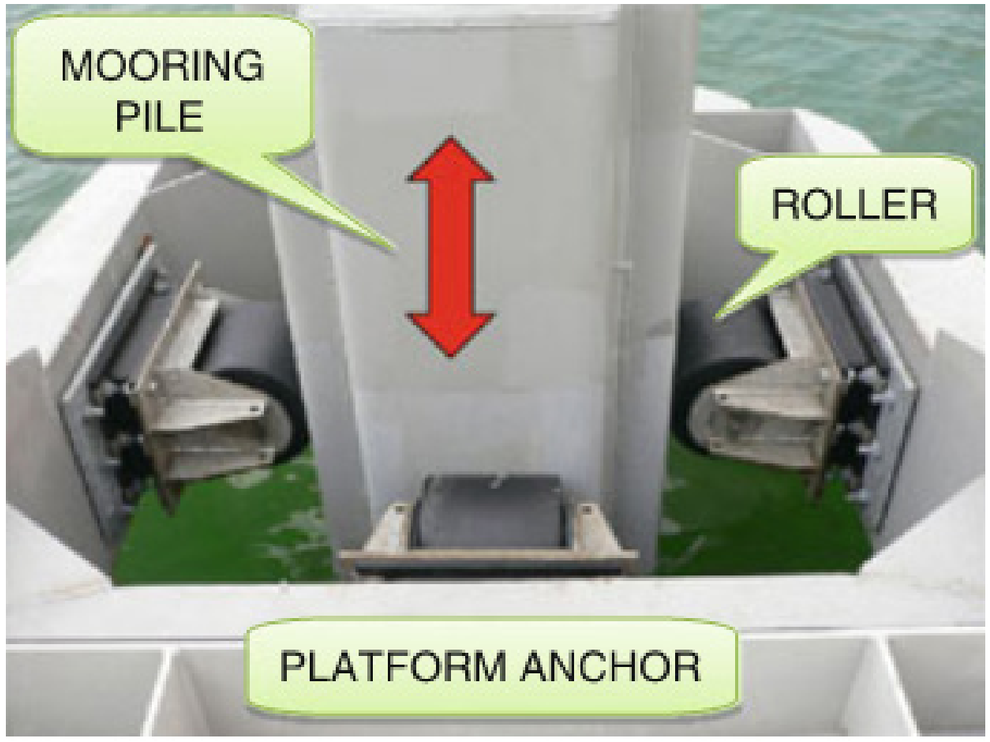
Steel Barge with Guide Piles and Ramp



MARINE ENGINEERING: COMFORT CRITERIA

Movement	Comfort criteria, RMS value
Roll	2°
Vertical acceleration	0.02 g or 0.66 ft/s^2
Lateral acceleration	0.03 g or 0.98 ft/s^2

- Limit of comfort values for roll, vertical and horizontal accelerations in cruise liners (Faltinsen, 1990).
- Criteria to be satisfied under operational conditions.
- During episodes of extreme weather conditions (design conditions), some people will feel uncomfortable.



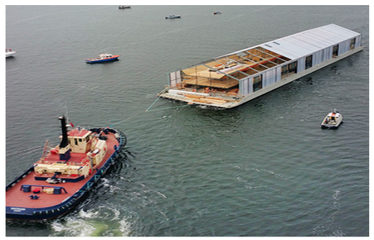
Marine Engineering: EXAMPLES OF BARGE SUPPORTED STRUCTURES

Gildersleeve School (Ketchikan, Alaska)

The Gildersleeve School in Ketchikan, Alaska was constructed on a 68 ft x 80 ft reinforced concrete barge. The school building has two levels with an apartment on 2nd level.

Vernon C. Bain Prison Barge (New York, NY)

Built in New Orleans along the Mississippi River brought to New York in 1992. The 625 ft x 125 ft steel barge is equipped with 14 dormitories and 100 cells for inmates.



Brook St. Pier Ferry Terminal (Australia)

Concrete Barge, Ferry Berth, mark and Restaurants.

Barge 225 Floating Offices (Cleveland, OH)

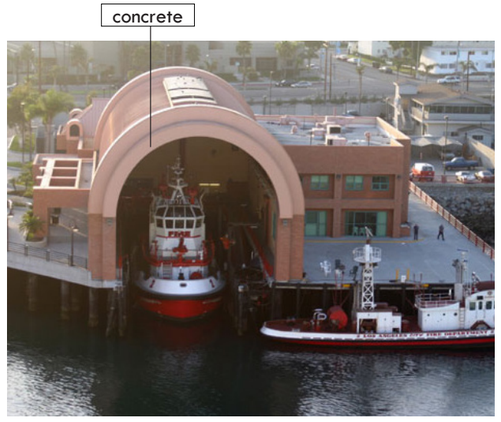
150 ft x 45 ft Steel barge was converted to a restaurant and then in 2013 to an office space.

FIRE BOAT STATIONS IN OTHER CITIES - MATERIALITY

NYFD Fireboat station

NYFD Fireboat station

Portland Fireboat Station



Los Angeles Fire Boat House

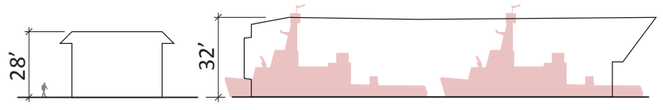
Boston Contemporary Museum on the water

Boston - Rowes Wharf

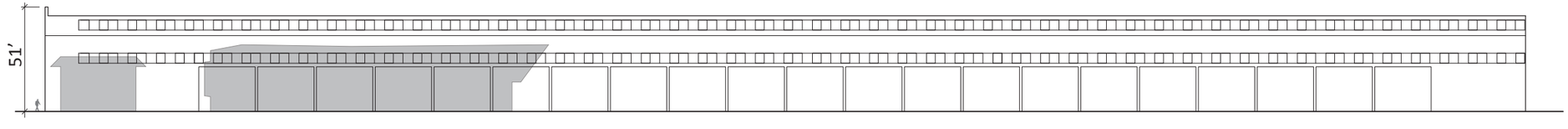
Boston - Cambridge Yacht Club

Boston - Harvard Boat House

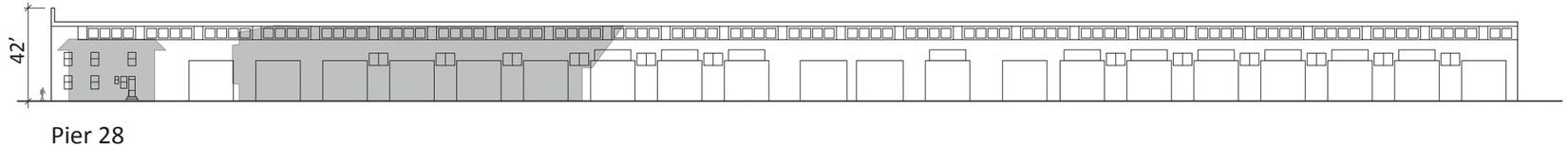
Context: RELATIVE SCALE



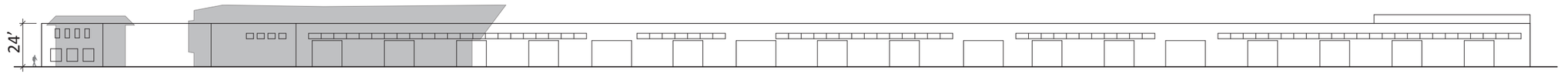
Pier 22.5 - Fire Station 35



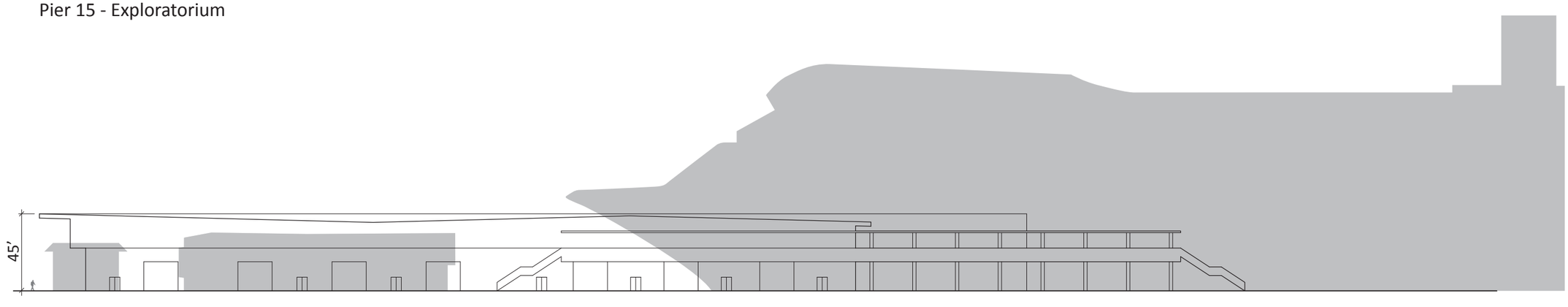
Pier 26 - Adjacent Pier



Pier 28



Pier 15 - Exploratorium

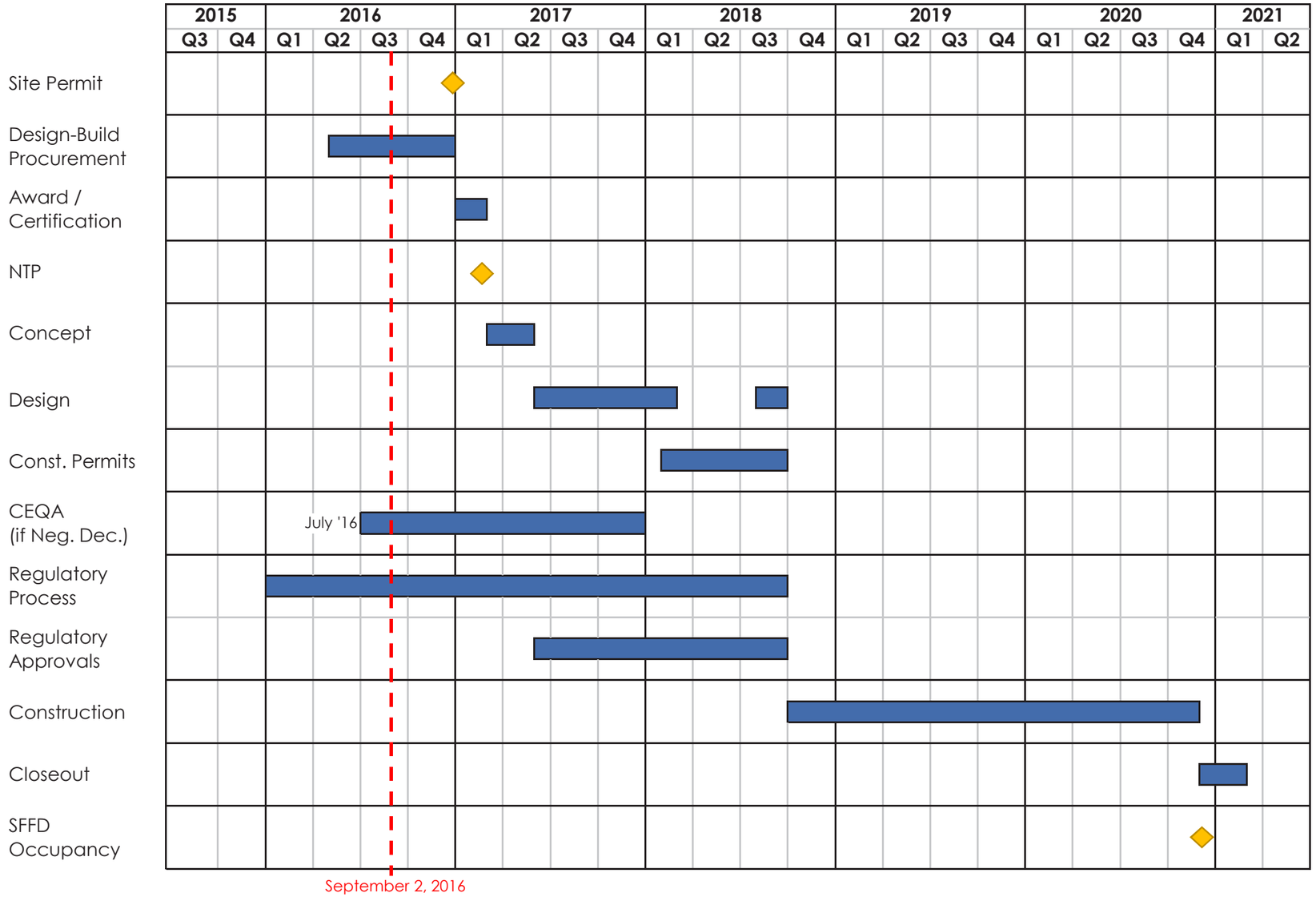


Pier 27 - Cruise Ship Terminal

Project: PERMITTING

	Agency	Type of Application
City Agency Approvals	San Francisco Fire Dept. (SFFD)	Review of Concept Design
	Citizen Advisory Committees (CAC)	Public Design Review
	Waterfront Design Advisory Committee	Public Design Review
	SF City Planning Environmental Planning Division	CEQA Review and Determination including procedures for historical resources
	SF Port Commission	Port Commission Review and Determination
	SF Port Building Permit Division	Port Building Permit
Regulatory Agency Approvals	Bay Conservations and Development Commission (BCDC)	BCDC Permit
	SF Bay Regional Water Quality Control Board (RWQCB)	CWA Sec. 401 Permit and/or Waste Discharge Requirements
	US Army Corps on Engineers (Corps)	CWA Sec. 404 Permit for discharge or dredged or fill material
	CA Dept of Fish and Game (DFG)	
	US Environmental Protection Agency (EPA)	CWA 404 Individual
	National Marine Fisheries Service (NMFS)	Sec. 7 consultation of FESA inconjunction with Army Corps Sec 404 Permit
	US Coast Guard	Maritime Transportation Security Act of 2002 (33 CFR)
	CA Lands Commission	Use plan consultation
	US Fish and Wildlife Services (FWS)	Consultation under Section 7 of Federal Ended Species Act

ESER 2014 Bond - Fire Station No. 35 at Pier 22.5
Preliminary Schedule



Prepared by San Francisco Public Works, Project Management
September 2, 2016

http://www.sfearthquakesafety.org/neighborhood-firehouses.html