

### REUSE ANALYSIS POST EXCHANGE AND COMMISSARY

### TECHNICAL MEMORANDUM



PREPARED FOR THE PRESIDIO TRUST

PREPARED BY

Sasaki Associates Inc.

28 DECEMBER 2001

MALLACE

### technical memoranda

subject	Reuse Analysis Memoranda		
contract/task no.	PT-2000-010/TX015142		
project no.	14017.00		
project name	Reuse Analysis of PX and Commissary		
from	Sasaki Associates Inc.		
to	The Presidio Trust		
date	28 December 2001		

#### SASAKI

Sasaki Associates Inc. 900 North Point St. Suite B300 Ghirardelli Square San Francisco, CA 94109 USA † 415 776 7272 f 415 202 8970 As part of the Crissy Field Implementation Planning effort, Sasaki Associates Inc. conducted analyses of Buildings 605 & 606 (Post Exchange - PX) and Buildings 610 & 653 (Commissary) and prepared alternative concepts and development programs for them. Attached are the technical memoranda summarizing the findings of the study.

SECTION ONE: INTRODUCTION & EXECUTIVE SUMMARY

SECTION TWO: PROPOSED REUSE SPACE ALLOCATION PROGRAMS

SECTION THREE! PX ANALYSIS

\* SECTION FOUR: COMMISSARY ANALYSIS

A1-82

APPENDIX A: STRUCTURAL FEMA 310 TIER 1 ANALYSIS

#### **APPENDIX B: CONSTRUCTION COST ESTIMATES**

ur Standard

#### SECTION ONE: INTRODUCTION & EXECUTIVE SUMMARY

#### INTRODUCTION

This memorandum summarizes the findings of a feasibility study for the Presidio Trust concerning the possible reuse of existing Buildings 605/606 (currently the PX) and 610/653 (currently the Commissary) for museum and or recreation use.

#### **A. PURPOSE OF REPORT**

The purpose of this report is to summarize the findings of a conceptual reuse analysis of two buildings in the Presidio near Crissy Field: the Post Exchange (PX) and the Commissary. Both buildings are currently in use by the military, but will be turned over to the Presidio Trust within the next two years. This report analyzes the buildings in their existing conditions and the modifications and resulting costs to convert them to other uses.

The study was commissioned by the Presidio Trust to complement long-range planning efforts for the Crissy Field area. In the Presidio Crissy Field Implementation Planning Technical Memoranda, prepared by Sasaki Associates in November 2000, possible reuse alternatives of the buildings and/or building sites are illustrated for hotel, conference center, museum/educational or recreational uses.

The scope comprehensively assessed the building structures for their architectural, structural, mechanical and electrical systems, and for their capacity to be adaptively reused for museum or recreation uses. Cost estimates were prepared for bringing the building shells up to code requirements, including seismic as well as potential tenant costs. The scope of this study is intentionally limited to the buildings only, in their current state and does not include any additions to the buildings, extensive exterior modifications, or site planning considerations.

#### **B. PROCESS**

Preparation of this report was done in four stages:

- Project orientation and evaluation of the existing buildings.
- Program preparation.
- Accommodation plans showing proposed reuse functions and modifications necessary to accommodate adaptive reuse.
- Preliminary cost analysis of the potential reuse options.

The project orientation began with a site visit by the project team. Each team member recorded observations and prepared existing conditions reports, highlighting the existing condition and construction, building deficiencies, compliance with current codes, and long-term assessment.

Following the site visit, a project kick-off meeting was held with the Presidio Trust. The purpose of this meeting was to define the project scope and agree upon the goals of the study. At this time it was decided to focus on two principal uses: museum and recreation. Other uses, such as those posited by the earlier November 2000 memoranda, were determined to be unsuitable given the existing buildings' floorplates and massing/volumetric characteristics.

Once the goals were established, baseline space allocation programs were developed for each use type (museum and recreation). Outlining the functional requirements for each use type, the necessary areas associated with these functions, and their physical requirements, the space allocation programs were then used to test and evaluate the suitability of the PX and the Commissary for accommodating either reuse program. For a more detailed explanation of the programming process, please refer to Section Two.

Accommodation studies were developed in plan to show possible interior layouts of both buildings for museum and recreational uses. From these conceptual plans, reports were prepared outlining the architectural, structural, mechanical and electrical modifications necessary to the buildings to accommodate the proposed new uses. These reports are included in Sections Three and Four. The reports, along with the annotated conceptual plans, were used for preparation of preliminary cost estimates. These estimates are summarized in Sections Three and Four, and included fully in Appendix B.

#### C. Assumptions

The following assumptions were made in the preparation of this report:

- The studies were limited to the existing buildings only. They do not address site development or modifications that might be necessary to address larger planning issues.
- Exterior modifications to the buildings were kept to a minimum in order to establish baseline minimum costs for conversion of the buildings to each use. Further studies are recommended to assess additional building modifications that might result from potential reorientation of building entries, site planning considerations, and possible massing modifications.
- All existing utilities serving the buildings are assumed to be sufficient to accommodate the proposed reuse options. Cost estimates do not include new utility connections or upgrades.

#### **D. LOCATION AND CHARACTERISTICS OF EXISTING BUILDINGS**

Since its conversion from an abandoned airfield to a national waterfront park, Crissy Field has already become a major draw for visitors to the Presidio. As described in the *Presidio Trust Draft Implementation Plan*, the Crissy Field area and its surrounding buildings are envisioned to become one of the main cultural, recreational and visitor destinations of the Presidio - a locus for museums ranging from the history of air travel to the story of western migration, visitor centers, and recreational and athletic facilities. Many of the existing buildings surrounding Crissy Field are older military warehouses, airplane hangers or maintenance facilities, which would require substantial renovation efforts to make them usable.

The Commissary and PX buildings, however, the most centrally located of all the buildings fronting Crissy Field, are by contrast relatively flexible modern buildings with large floorplates, wide structural spans, and reasonably high interior volumes. Neither building is classified as "historic". Both would appear to offer the greatest opportunities for possible conversions to museum or recreational facility uses.

The PX, which was constructed in two phases in the early 1970s, was designed to house the main retail store for the former military base. The PX presently contains a total of 49,690 square feet of building space. A one-story building containing two small mezzanines, its entrance faces west to an adjacent parking lot toward the Commissary building. The building is essentially a windowless box with storefront glazing on the west façade facing the parking lot, and a stucco exterior. The roof is flat with a decorative tile mansard parapet. The interior of the building offers level floors, large open-span construction, and high ceilings, which are suitable for adaptive reuse as a museum or recreational facility. Renovation to accommodate such uses would still be fairly substantial, however. Once a building's occupancy type changes, any renovation effort would require the building to be upgraded to meet current code requirements. For the PX, substantial renovation costs would result from the need to meet current accessibility codes and seismic strengthening requirements. For more details regarding the existing building and associated renovation costs, please refer to Section Three of this report.

The Commissary, which was designed in the late 1980s, was constructed to house the main food store for the former military base. The Commissary presently contains 92,722 square feet of space. Sited across the parking lot from the PX building, it also is a one-story building containing two small mezzanines. The building's principal customer entry faces east with major service entries on the north and west faces of the building. Of relatively modern construction, the Commissary also features reasonably high interior volume and a large floorplate. The stucco exterior is largely windowless with storefront glazing facing east to the parking lot. The roof is flat with pyramidal skylights and a decorative clay tile, mansard parapet. The interior of the building also exhibits level floors, medium open-span construction and high ceilings with skylights that could support adaptive reuse as a museum or recreational facility. The unit costs for the PX, but it too would require similar seismic improvements and accessibility upgrades to meet current codes. More details regarding this building can be found in Section Four.

#### E. CONCEPTUAL PROGRAM FOR MUSEUM AND RECREATION USE

The space allocation program developed for the museum was developed in conjunction with the Presidio Trust. Proposed functional requirements for the building include:

- exhibition galleries
- reception areas

- movie theater
- visitor services such as coat check, toilets, restaurant/café, and museum stores
- administration offices
- exhibition receiving and preparation areas
- collections storage

The conceptual space program for museum functions would range in size from 75,000 to 100,000 square feet. The Commissary is more than large enough for a museum function. The PX is not large enough to accommodate the projected museum program by itself. It was determined by the Presidio Trust that any museum proposed for either building would primarily feature traveling exhibitions rather than permanent collections.

The space allocation program developed for a recreational facility was developed in conjunction with the Presidio Trust and modeled after YMCA facilities of similar size. Proposed functional requirements for the building include:

- aquatic center with hydrotherapy pools
- gymnasiums
- racquetball and squash courts
- cardio-vascular workout areas
- aerobics and cycling studios
- locker rooms
- childcare center
- juice bar
- administration offices

A total recreation program of 80,000 to 95,000 square feet of space is envisioned. The Commissary's size falls within the range of projected program, while the PX is too small to accommodate all of the programmed functions of the recreation program.

#### F. SUMMARY OF FINDINGS

#### The Commissary is feasible for reuse as a museum. Reuse for recreation purposes would be more expensive for either the Commissary or the PX.

The reuse analyses suggest that either building would appear to accommodate museum uses better than recreational uses. Except for the programmed theater space, virtually no other significant structural modifications to either building would be required to accommodate a museum, other than seismic strengthening. Cost considerations aside, both existing buildings would allow for flexible gallery spaces, multiple ceiling heights, and a range of natural lighting possibilities.

By way of contrast, the large clear spans and high ceilings required by recreational program elements such as an aquatic center or gymnasium would demand substantial structural modifications to both buildings. While the Commissary building possesses sufficiently high interior volume for a gymnasium, and squash and racquetball courts, these uses would demand removal of existing structural columns, as well as concomitant modifications to the foundations and roof structure. Conversely, the existing PX exhibits the long-span structural characteristics required for recreational use, but would require the existing roof to be removed and raised in order to create sufficient interior volume.

Placing an aquatic center into either existing building would be very costly. Not only would the Commissary require removal of columns as discussed above, but both buildings would require removal of existing floor slabs and foundation; excavation of pits for pools and pool equipment; construction of the pool tank and deck in constrained conditions; special considerations for moisture proofing and corrosion proofing of all materials within the pool enclosure; and modification of all existing HVAC ductwork to stainless steel or PVC for corrosion resistance. It would be considerably more cost-effective at either building to construct an addition or stand-alone structure to contain the aquatic center. Accordingly, none of the conversions illustrated in this report, which feature a new aquatic center within the existing buildings, is recommended. To build an addition in either case, however, would result in 12,000 to 15,000 square feet of unprogrammed recreation area within the existing buildings.

#### 2. Costs for a museum reuse of the Commissary are substantially less than new construction. Costs for recreation reuse are close to the costs of new construction.

The primary intent of this study, limited as it is to the buildings' current footprints, is to estimate, on a preliminary basis, the minimum costs associated with any conversion of the two buildings. The table following summarizes these preliminary construction cost estimates - exclusive of project costs, removal of hazardous materials, or building modifications other than those described by the accommodation studies and accompanying reports. The costs have been sub-divided into building shell and tenant improvement costs. The building shell costs are usually attributed to the owner/developer (the Trust) and the tenant improvement costs to the tenant/user. The building shell costs include interior demolition, code upgrades, structural modifications, exterior modifications, and systems upgrades exclusive of tenant build-out. The tenant improvement costs include all necessary renovation work required to construct the interior of the museum or recreational facility.

Finally, the cost to provide a similar facility of completely new construction has been included for comparison purposes. These costs are exclusive of site acquisition or site development costs. The figures are based upon discussions with cost consultants in San Francisco, local architects and Sasaki's experience in similar project types.

Summary of Estimated Costs:

	PX Building cost/square foot	Commissary cost/square foot	New Construction cost/square foot
Museum Reuse (total)	\$214	\$203	\$300 - \$500*
Building Shell	\$93	\$68	
Tenant Improvement	\$121	\$135	
Recreation Reuse (total)	\$240 (avg)	\$211	\$250 - \$300**
Building Shell	\$100 (avg)	\$64	
Tenant Improvement	\$140 (avg)	\$147	

\*Costs based upon recent museums in the Bay Area. For example, preliminary costs for the new Jewish Museum in San Francisco, another renovation project, are estimated close to \$400/sf. The Academy of Sciences renovation in San Francisco, is estimated to cost \$400-500/sf. The Getty Center in Los Angeles costs up to \$900/sf.

\*\*Costs based upon recent Sasaki Associates recreational projects, and other local construction projects.

# 3. Additional exterior architectural and site development costs would be incurred to make any reuse of these buildings compatible with the long-range master plan for the Presidio.

Beyond the considerations of this report, it will be desirable to explore substantial exterior modifications to the buildings in order for them to fit more comfortably within their site context. Larger planning considerations might also suggest reorienting the building entrances, recladding the buildings with new materials, constructing additions to the structures to break up their large massing, or removing some sections of the existing structures. Finally, the potential of landscaping to help screen and reduce the apparent scale of the buildings should be considered. Such proposals and their associated costs are specifically not addressed by this study, however.

#### 4. The Commissary and PX lie at the critical point of connection between Main Post and Crissy Field and will be impacted by the long range Presidio Trust Plan, and the Doyle Drive reconstruction.

While this study is limited to the buildings in their existing context, consideration of the long-range planning efforts and recommendations relative to this the area around these buildings should precede any potential renovation plans. Planning documents/efforts which could impact the renovations to the PX and Commissary buildings include:

- Presidio Trust Draft Implementation Plan
- Presidio Crissy Field Implementation Planning Technical Bulletin
- Presidio Mason Street Alternatives Study Technical Bulletin

Doyle Drive/Route 101 Redesign

All of these studies propose recommendations for the land occupied by the PX, the Commissary and their shared parking lot. In the *Presidio Trust Draft Implementation Plan, Presidio Crissy Field Implementation Planning Technical Bulletin,* and *Presidio Mason Street Alternatives Study Technical Bulletin,* the site is envisioned to serve as an important open space link between the Main Post and Crissy Field. The plan envisions the removal of the PX building and the parking lot, replacing it with a landscaped open-space, providing both a pedestrian and visual connection from the Main Post to San Francisco Bay. Both studies propose reducing the amount of parking along the Crissy Field area, replacing it with remote structured parking in another location.

Both buildings might also be impacted by the Doyle Drive/Route 101 reconstruction and replacement. Schemes prepared by the California Department of Transportation propose relocation of Doyle Drive's elevated roadway to an on-grade boulevard or below-grade tunnel. While the study is still a work-in-progress, it should be noted that the land occupied by the PX and the Commissary could be used for the temporary or permanent roadway, requiring both buildings to be demolished.

## 5. Reuse of the Commissary for museum functions is feasible. Reuse of the PX is not recommended.

Based upon the conclusions of this reuse analysis and consideration of the longrange planning efforts, Sasaki recommends reuse of the Commissary for museum functions and removal of the PX. The PX, which is too small to accommodate a stateof-the-art recreational facility, could be converted to a museum, however the costs associated with seismic strengthening, structural, mechanical and electrical upgrades, and its location at the critical juncture between the Main Post and Crissy Field strongly mitigate against any significant reinvestment in the PX building for either the short term or the long term.

### PRESIDIO TRUST/ CRISSY FIELD

#### Building 605 & 606

#### Potential Reuse Programs:

- Exhibition Space
- Lobby Space/Museum

#### Uses:

Historic:	PX		
Current:	General Store		

#### **Existing Building Statistics:**

Date of Construction:	1972
Area/Sq.Footage:	49,690 sf. total
1" floor:	42,184 sf.
Mezzanine:	7,506 sf.
Annex:	7,415 sf.
Plan Dimensions:	59'-6" x 104'-6"
Ceiling Height:	15'-8" (Building 605 – Warehouse)
	11'-4" (Building 605 – Retail Area)
	9'-2" (Building 606 - Concessions \
Type of Construction	II, Steel Studs/Frame
Historic Structure	No





#### Analysis:

NHL listed

Condition: Good

Architectural/Special Features:

Large open floor areas

Building Configuration/Site Relationships:

This building occupies a very prominent location along Mason Street.

Flexibility/Adaptability:

Large open plan allows for a variety of uses.

No

#### Comments:

These buildings are not historic, nor do they contribute to the historic character of Crissy Field, and thus are probably good candidates for removal. In some ways their character actually detracts from the visual architectural quality at Crissy Field.



Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

### PRESIDIO TRUST/CRISSY FIELD Building 610 & 653

#### Potential Reuse Programs:

- Exhibition Space
- Lobby Space/Museum

#### Uses:

Historic:	Commissary		
Current:	General Store		

#### **Existing Building Statistics:**

Date of Construction:	1989
Area/Sq.Footage:	92,722 sf. total
1" floor:	92,722 sf.
Plan Dimensions:	311′-6″ x 210′-11″
Ceiling Height:	25'-2" (Building 610 - Warehouse)
	12'-0" (Building 610 - Retail)
	13'-6" (Building 653)
Type of Construction	II, Steel Studs/Frame
Historic Structure	No
NHL listed	No





#### Analysis:

Condition: Good

Architectural/Special Features:

Large open floor areas

Building Configuration/Site Relationships:

This building occupies a very prominent location along Mason Street.

Flexibility/Adaptability:

• Large open plan allows for a variety of uses.

#### Comments:

These buildings are not historic, nor do they contribute to the historic character of Crissy Field, and thus are probably good candidates for removal. In some ways their character actually detracts from the visual quality of the surrounding buildings. They could be redesigned to some extent to fit into the architectural vernacular found at Crissy Field.



Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

#### SECTION TWO: PROPOSED REUSE SPACE ALLOCATION PROGRAMS

After the analyses of the existing buildings conditions were recorded, space planning programs were developed to establish baselines for the types of occupancies and building uses that might take place within the renovated buildings. This section explains how the programs for museum and recreational uses were developed.

The programs included in this section show the assignable area in square feet (ASF) and the total gross square feet (GSF) of the building. Assignable square feet is the area of the actual room or area needed for each function, exclusive of walls, structure, and circulation. An efficiency factor is then applied to the assignable area, to account for areas required for circulation, mechanical and electrical spaces, structure, wall thicknesses and exterior construction. The resulting figure represents the estimated gross square foot (GSF) area of the building.

#### A. DETERMINATION OF BUILDING TYPES FOR THIS STUDY

This study is limited to two building type uses, museum and recreation. The decision to limit the study to these two uses was decided over many discussions with the Presidio Trust and a review of other planning efforts concerning the Crissy Field area of the Presidio. The planning efforts envisions a mix of visitor services, cultural institutions, and recreational facilities for the buildings surrounding Crissy Field. In addition, due to the big floorplates and large massing of these buildings, along with its prominent location, many other types of uses did not appear to be appropriate, such as offices, schools, storage or other uses.

A matrix evaluating different building types for both the PX and Commissary buildings is included at the end of this section (Tables 1 and 2). Each table evaluates different building uses with the following categories:

- Floor Plate: an analysis of the footprint of the building. Do the large floor plates work for each use? Each is ranked from poor to excellent.
- Bay Size: an evaluation of the existing structural bays (spacing between columns) that may limit the use of the buildings.
- Windows: both buildings currently lack windows on three sides of the buildings. This is good for some types, while poor for others. This column evaluates the impact to each use.
- Ceiling Height: some building uses require high ceilings. This column evaluates if the existing ceiling heights are compatible for each use.
- Infrastructure/Systems: this column evaluates if the existing mechanical, plumbing, electrical and other systems can be utilized or replaced.
- Notes: other issues and professional evaluations are included in this column.

#### **B.** MUSEUM FACILITY

Before developing a program for museum use, Sasaki met with the Presidio Trust and obtained a variety of documents to understand the history and thoughts for the different types of museums envisioned for the Commissary/PX site.

The following resources were used:

- Meeting between Sasaki Associates and the Presidio Trust Cultural Programs Director. Director explained role of the Presidio Trust Cultural Programs has had in developing a vision for the site.
- Review of Report Creating a "Living Cultural Experience" at The Presidio. Report recommends the site as the location for "The Journeys Center". This museum, acting as an orientation center for the Presidio National Park, would be a place to document the West's migration experiences and a temporary exhibition showcase, which is envisioned to be the first stop for visitors to the Presidio. Spaces identified in the report for this museum include a film theater, exhibition galleries, an information center, a ticketing center, retail and food service accommodations.
- Review of draft program for a Pacific Coast Immigration Museum created by the Planning & Partnerships Team of the National Park Service. It recommends a museum to record the immigration experience of Californians, assuming both permanent and temporary collection galleries, a theater, and research/administration/collections management areas.
- Review of document San Francisco Bay Area Multi-Park Archival & Museum Collections Storage & Use Area Needs by the National Park Service. It outlines the need for a permanent safe storage facility in the Bay Area for holdings of multiple Bay Area parks and historic sites.

Space	Critical Dimensions/Notes	Area (ASF)
Entry/Reception/Visitor Cer	iter	
Vestibule		200
Entry/Reception	Large area for functions, exhibition	3,000
Ticket Office		1,000
Coat Check		500
Orientation Theatre	500 person theatre (20 sf/person x 1.4)	14,000
Meeting/Education Rooms	2 Rooms at 800 sf each (seats 50)	1,600
Public Toilets	Men + Women	1,000
Public Telephone Area		50
Museum Shop		1,000
Café/Restaurant	Kitchen + 100 people dining	2,500
		24,850

The resulting program developed for this study follows. It assumes a museum showcasing traveling exhibitions over permanent collections.

### MUSEUM PROGRAM (CONTINUED)

Space	Critical Dimensions/Notes	Area (ASF)
Adminstration Area		
Staff Offices	Assume 10 staff members	2,250
Curator's Office		150
Copy/Fax/Mailroom		100
Staff Breakroom		200
Staff Storage		200
Staff Restrooms		200
		3,100
Galleries		
Galleries (5)	2,000 sf/each (40'x50')	10,000
Galleries (10)	1,500 sf/each (30'x50')	15,000
		25,000
Temporary Exhibition Storage	e and Staging	
Security Office		150
Shipping/Receiving		2,000
Crating/Uncrating Room		1,200
Temporary Exhibition Storage		1,200
Crate Storage Room		1,200
		5,750
<b>Collections Management</b>		
Registration Office		150
Collections Storage		3,000
Archival Library		2,500
Museum Display Shop	Assumes one Museum Graphics Lab	1,500
Recycling Room		100
Guard Lockers and Breakroom		800
		8,050
	Total (ASF)	66,750
Grossing Factor 55%	Includes Circulation, HVAC, Electrical	35,942
	Rooms, Pump Rooms, etc. Total GSF	102,692

#### C. RECREATION FACILITY

For the recreation facility, the Presidio Trust asked Sasaki Associates to model the facility based upon a YMCA facility of similar size.

The following resources were used in creating the program:

- Review of document analyzing the program established for the YMCA facility at Piers 27-31 by the Port of San Francisco.
- Consultation with the Director and Aquatics Director of the Presidio YMCA.
- Review of NCAA Standards to determine standard sizes of gymnasiums and natatorium facilities.

The program created contains the following elements:

- Visitor facilities: Juicebar, childcare center, locker rooms.
- Fitness Center: Exercise and aerobic areas, classrooms, studios.
- Aquatics Center: 25-meter lap pool, kids/therapy pool and whirlpool.
- Gymnasium Facilities: Gymnasiums, racquetball and squash courts.

The full program developed is as follows:

Space	Critical Dimensions/Notes	Area (ASF)
Entry/Administration		
Entry/Reception		400
Towel Storage		400
Offices	Manager, Sales, Staff, Acct.	2,000
Conference/Seminar Room		800
Office Storage Room		100
Child Care Area	75 sf/occupant x 20 people	1,500
Café/Juice Bar	Kitchen + 20 people dining	700
		5,900
Locker Rooms/Services		
Men's Locker Room	w/ Sauna, Steamroom, Showers, Toilets	3,500
Women's Locker Room	w/ Sauna, Steamroom, Showers, Toilets	3,500
Massage Rooms		300
		7,300
Gymnasiums		
Gymnasium 1	70' x 114' x 24'h (includes 10' perimeter area)	7,980
Gymnasium 2	70' x 114' x 24'h (includes 10' perimeter area)	7,980
Gymnasium Supply Storage		300
		16,260

### RECREATION PROGRAM (CONTINUED)

Space	Critical Dimensions/Notes	Area (ASF)
Aquatics		
25 meter pool	80' x 102' x height (includes 10' perimeter)	8,160
Kids/Therapy/Exercise Pool	80' x 40'	3,200
Spa in Aquatics center		900
Pool Storage Room		200
		12,460
Cardio/Weights		
Viewing Areas		800
Racquetball Court 1	20' x 40' x 20'h	800
Racquetball Court 2	20' x 40' x 20'h	800
Squash Court 1	21' x 32' x 18'-6"h	672
Squash Court 2	21' x 32' x 18'-6"h	672
Court Storage		100
Aerobics Studio 1	75 sf/occupant x 30 people	2,250
Aerobics Studio 2	75 sf/occupant x 30 people	2,250
Spinning Studio (Stationary Bicycles)	35 sf/occupant x 30 people	1,050
Studio Storage		200
Cardio Room		4,000
Stretching Room		1,500
Weight Room		2,500
Toilets	Men's + Women's	300
		17,894
	Total (ASF)	59,814
Grossing Factor 55%	Includes Circulation, HVAC, Electrical Rooms, Pump Rooms, etc.	32,208
	Total GSF	92,022

#### TABLE 1

POST EXCHANGE BUILDING ANALYSIS						
BUILDING USE TYPE	FLOOR PLATE	BAY SIZE	WINDOWS	<b>CEILING HEIGHT</b>	INFRASTRUCTURE/SYSTEMS	NOTES
Museum	Good	Excellent	Depending on type of museum, lack of windows may be okay	Good, variety of heights available.	Totally new systems required.	Good building museum.
Recreational	Excellent	Excellent	Additional windows required.	Excellent, except for gymnasiums, racquetball and squash courts.	Totally new systems required.	Building may be too small for good health club.
Residential	Too large for residences without additions of courtyards to bring in natural light to spaces, except for concessions wing	Good	Many windows will have to be added, along with courtyards (similar to Oriental Warehouse)	Good	Totally new systems required.	Not a good building for residential use.
Office	Good	Good	Lack of windows and large spans would require installation of courtyards	Good	Totally new systems required.	If building is substantially modified it could be used at offices, but at large cost.
Storage	Excellent	Excellent	Excellent, lack of windows is good for storage facilities.	Good	Depending on type of storage, existing systems may be suitable.	Good building for storage, but is it best use for site?
Retail	Excellent	Excellent	Few windows, but current use as retail is sufficient for building.	Good	Suitable for use, although systems near end of life span.	Good building for retail.
Theater/Movie House	Good	Excellent	Lack of windows good for theaters.	Too low for large theaters with ramped floors.	Totally new systems required.	Conversion of building to theater use would require substantial upgrades to structure, and due to amount of people, many additional exits.
Performance Space	Excellent	Excellent	Lack of windows good for performance uses.	Too low for large theater, lack of height for flybridge.	Totally new systems required.	Same notes as theater use.
Artist Studio	Poor	Good	No natural light or access to ventilation. Substantial improvements required, such as installation of courtyards.	Good	Totally new systems required.	Not a good building for artists studios, due to lack of natural light.
School/Institutional	Good	Excellent	Although not required, lack of windows could make dull space.	Excellent	Totally new systems required.	Could be converted for institutional use.
Film Studio	Good	Excellent	Excellent, usually film studios don't have windows.	May be too low for lighting and props.	With all the lamping required for filming and heat gain, new systems required du	Not appropriate for film use unless substantial modifications are made.
Community Center	Good	Good	Depending on use, substantial additions of natural light assumed.	Good	Totally new systems required.	Fair building for a community center
Conference Center	Excellent	Excellent	Lack of windows may be okay, but recommend additional windows be added.	Good	Totally new systems required.	Could be used as conference center
Food Service	Too large for food service use.	Excellent	For large restaurant or cafeteria, existing windows may be sufficient	Good	Totally new systems required.	Building too large, unless used as major cafeteria type restaurant.

### TABLE 2

Г

COMMISSARY BUILDING ANALYSIS						
BUILDING USE TYPE	FLOOR PLATE	BAY SIZE	WINDOWS	CEILING HEIGHT	INFRASTRUCTURE/SYSTEMS	NOTES
Museum	Excellent	Excellent	Depending on type of museum, lack of windows may be okay, skylights good.	Good, variety of heights available.	Systems upgrade required.	Good building for museum.
Recreational	Excellent	Fair, not enough open span construction for aquatics and gyms.	Additional windows required.	Excellent	Systems upgrade required.	Good building for recreational uses, although structural upgrading req'd.
Residential	Too large for residences without additions of courtyards to bring in natural light to spaces, except for concessions wing	Fair	Many windows will have to be added, along with courtyards (similar to Oriental Warehouse)	Good	Totally new systems required, removal of entire foundation may be required for all the residential toilets and kitchens.	Not a good building for residential use.
Office	Fair	Good	Lack of windows and large spans would require installation of courtyards	Good	Totally new systems required.	If building is substantially modified it could be used at offices, but at large cost.
Storage	Excellent	Excellent	Excellent, lack of windows is good for storage facilities, although skylights may require removal.	Good	Depending on type of storage, existing systems may be suitable.	Good building for storage, but is it best use for site?
Retail	Excellent	Excellent	Few windows, but current use as retail is sufficient for building.	Good	Suitable for use, although systems near end of life span.	Good building for retail.
Theater/Movie House	Good	Poor, not enough clear spans; structural upgrades would be required.	Lack of windows good for theaters.	Too low for large theaters with ramped floors, except in warehouse section	Totally new systems required.	Conversion of building to theater use would require substantial upgrades to structure, and due to amount of people, many additional exits.
Performance Space	Fair	Poor, not enough clear spans; structural upgrades would be required.	Lack of windows good for performance uses.	Too low for large theater, lack of height for flybridge?	Totally new systems required.	Same notes as theater use.
Artist Studio	Poor, floor plate too large for artist's studios.	Good	No natural light or access to ventilation. Substantial improvements required, such as installation of courtyards.	Good	Totally new systems required.	Not a good building for artists studios, due to lack of natural light.
School/Institutional	Good	Excellent	Although not required, lack of windows could make dull space.	Excellent	Totally new systems required.	Could be converted for institutional use.
Film Studio	Excellent	Fair, film studios would probably need larger open span construction.	Excellent, usually film studios don't have windows.	May be too low for lighting and props, skylights would require removal.	With all the lamping required for filming and heat gain, new systems required du	Not appropriate for film use unless substantial modifications are made.
Community Center	Fair, too large for a community center.	Good	Depending on use, substantial additions of natural light assumed.	Good	Totally new systems required.	Fair building for a community center
Conference Center	Fair, may be to large of floorplate.	Good	Lack of windows may be okay, but recommend additional windows be added.	Good, skylights could be a problem with light control.	Totally new systems required.	Could be used as conference center, although not recommended.
Food Service	Too large for food service use.	Fair, many columns.	For large restaurant or cafeteria, existing windows may be sufficient	Good	Totally new systems required.	Building too large, unless used as major cafeteria type restaurant.

.

#### SECTION THREE: PX ANALYSIS

This section summarizes the findings associated with the PX. It includes an analysis of the existing building, accommodation studies that explore the potential conversion of the building for reuse as either a museum or recreational facility, supporting technical reports, and probable costs. This section is organized into the following subsections:

- A. Existing Conditions Description
  - 1. Location
  - 2. Physical
    - a) Architecture
    - b) Structural
    - c) Mechanical Systems
    - d) Electrical Systems
- B. Museum Reuse Alternatives
  - 1. Program Notes
  - 2. Accommodation Diagram
  - 3. Building Modifications Description
    - a) Architecture/Code
    - b) Structural
    - c) Mechanical
    - d) Electrical
  - 4. Probable Cost
- C. Recreational Facility Alternatives
  - 1. Program Notes
  - 2. Accommodation Diagrams
  - 3. Building Modifications Description
    - a) Architecture/Code
    - b) Structural
    - c) Mechanical
    - d) Electrical
  - 4. Probable Cost

#### A. EXISTING CONDITIONS DESCRIPTION

#### 1. LOCATION

The Post Exchange (PX) retail facilities (Buildings 605 & 606) are located south of Mason Street from the Tidal Marsh at Crissy Field. The complex is surrounded by a parking lot to the west, Mason Street and the recently renovated Crissy Field Center (Building 603) to the north, a loading dock and Halleck Street to the east, and the Highway 101/Doyle Drive overpass to the south. The Commissary building sits opposite the parking lot to the west.

#### 2. PHYSICAL

Sasaki Associates and its consultants evaluated the building in its current state and developed an analysis of what general modifications would be required to adapt the buildings to alternative uses under current codes. Specific building modifications associated with potential reuse of the PX as a museum or as a recreational facility is discussed in subsections B.3 and C.3 respectively. The following physical description is based upon site observations performed on May 9, 2001 and a review of construction documents that were provided by the Department of the Interior, National Park Service Archives. A detailed site survey was not performed, only general observations. At the commencement of any redevelopment projects for the PX, we would recommend a complete building assessment survey be completed.

#### a) ARCHITECTURAL

The PX retail facility is a large building in the Crissy Field Planning District of the Presidio. The building contains large, open-span construction, high interior volume, and is built on one level, with the exception of two mezzanines in the warehouse. The PX consists of three building sections:

- Merchandise section containing display areas, changing rooms, toilets, offices, and cashier areas.
- A connected warehouse that was added onto the back (eastside) of the building, forming an "L".
- A separate concession wing located at the southwest corner of the main merchandise building, connected to the PX via a covered walkway, containing a mini-mall of small stores.
- An arcade, serving as a connector linking the merchandise section with the concessions wing.

#### Building Size and Age:

The complex contains 49,690 total square feet in two main buildings: the main store which has 32,162 square feet (built in 1972) and warehouse addition which has 10,788 square feet (built in 1974) both classified as Building 605, and the concessions wing known as Building 606 which has 7,461 square feet (which was built at the same time as the main store). Building 605 is "L" shaped in plan, with the warehouse addition providing the leg of the "L". Overall exterior dimensions are 325'-3" in the east-west direction by 195'-6" in the north-south direction. Building 606 is 176'-0" in the east-west direction by 63'-8" in the north-south direction, and sits west of the entry, connected by a glazed arcade. All areas are obtained from surveys provided by the Presidio Trust.

The interior areas are grouped as follows to aid in identification purposes:

- Retail Area
- Office/Administration
- Warehouse
- Concessions Wing

Of the two warehouse mezzanines, one is quite large (6,350 square feet), occupying half the warehouse, constructed of steel frames and metal grated floors; it is accessible via two metal stairways. The other mezzanine sits above a one-story block containing the warehouse office, a restroom, a janitor's closet and a cold storage room. It is accessible by ladder. This mezzanine also provides access to the roof by way of a roof hatch and ladder.

#### Construction Type:

Building 605 (the retail area and warehouse addition) was constructed as a Type II – non-combustible building. The flooring is concrete slab on grade, the exterior walls are six-inch structural metal studs with cement plaster over metal lath, and the roof is a steel open-web joist and beam structure with exposed concrete decking and built-up roofing (tar and gravel) supported by steel columns. A decorative mansard clay tile roof surrounds all sides of the retail portion of the building, except for the warehouse addition, which has no mansard. A wood framed post and beam canopy with skylights extends across the front of the building. All of the steel beams and columns are unprotected (non-fireproofed).

Building 606 (the concessions wing) was constructed as a Type II – non-combustible building. The flooring is concrete slab on grade, the exterior walls are six-inch structural metal studs with cement plaster over metal lath, and the roof is a steel open-web joist and beam structure with concrete decking and built-up roofing supported by steel columns. A decorative wood joist ceiling with plexiglas pyramidal skylights runs down the center of the concessions building. A mansard clay tile roof surrounds all sides of the building. All of the steel beams and columns are unprotected (non-fireproofed).

Interior finishes are recorded in a later section of this memorandum.

#### **Building Height:**

Building 605 is a one-story retail box, surrounded by a mansard clay tile roof on all four sides. The top of the mansard roof is 19'-3" above grade. The warehouse addition, which sits approximately 6 inches higher than the original retail store, does not have a mansard roof, but a parapet instead. All roof parapets and mansard roofs are at the same level on all sides of the building. The wood framed front canopy is lower, with the top at 10'-6" above grade.

The highest interior space is in the warehouse addition with a clear interior height of 15'-8" AFF (above finished floor). The main retail area, which has a suspended ceiling hung at 11'-4" AFF, has a clear height of 14'-2" AFF to the bottom of structure, if the ceiling were to be removed.

Building 606, similar in style to the main retail block, also has a mansard clay tile roof on all four sides. The top of the mansard roof is approximately 15'-0" above grade.

The highest interior space is in the retail area, which has a suspended ceiling hung at 9'-2", but could obtain a clear height of 12'-0" to the bottom of the steel joists, if the suspended ceiling were removed.

#### Finishes and Materials:

Building 605 existing finishes are as follows:

- Floors:
  - Sealed concrete in the warehouse, mechanical rooms.
  - Vinyl composition tiles (VCT) in the retail areas, breakrooms, and stockrooms.
  - Ceramic tile in the restrooms.
  - Quarry tile pavers at the arcade and in the entry area of the main sales room.
  - Carpeting in offices.
- Walls:
  - Painted gypsum board in retail areas, warehouse, offices, breakrooms, and stockrooms. Some of the walls contain vinyl wallcovering.
  - Ceramic tile in the restrooms.
- Ceilings:
  - Suspended acoustical panels in retail areas, offices, and breakroom.
  - Painted gypsum board in restrooms and retail support areas.
  - Exposed structure in mechanical room, warehouse, and stockrooms.
  - Decorative wood truss and beam canopy containing plexiglas pyramidal skylights.
- Windows:
  - Windows are limited to the west entry façade only. Windows are aluminum framed with 1/4" glazing, extending floor to ceiling.
- Doors:
  - Aluminum and glass storefront doors at entry to retail areas.
  - Hollow metal in all other areas.
  - Two 8'x9' overhead coiling doors in the warehouse.

Building 606 existing finishes are as follows:

- Floors:
  - Vinyl composition tile floors in retail areas.
  - Sealed concrete in the mechanical room.
  - Pavers in the public arcade.
  - Ceramic tiles in the restrooms.
- Walls:
  - Painted gypsum board and aluminum/glass storefront.
  - Ceramic tile in restrooms.
- Ceilings:
  - Suspended acoustical panels in retail areas.
  - Decorative wood ceiling with plexiglas pyramidal skylights in public arcade.
  - Painted gypsum board in restrooms.
  - Exposed structure in the mechanical room.

- Windows:
  - Windows are limited to storefront only in the arcade. They are constructed of aluminum and glass, installed floor to ceiling.
- Doors:
  - Aluminum and glass storefront doors at entry to retail spaces.
  - Hollow metal for all remaining doors.

#### Additional Observations:

During our site visit, we recorded the following items in both buildings that would require repairs or upgrades for any renovation project:

- Items that do not meet current accessibility codes which would require corrections in any renovation effort include:
  - All toilet rooms.
  - Door hardware (lever handles required).
  - Door widths: many doors in both buildings contain less than a 32" clearance, the minimum width necessary for wheelchair access. All doors to restrooms are inaccessible as they are only 2'-4" or 2'-8" wide. Similar conditions exist in the office area.
  - Public telephone heights: they are mounted too high.
  - Drinking fountains.
- The stairs leading to the warehouse mezzanine do not have the proper handrails. The treads are too shallow and the risers too steep. Replacement would be required if the mezzanine were to remain.
- In the report, Asbestos Materials Re-survey and Lead-based Paint Investigation report by Versar, Inc. asbestos has been detected or assumed to be present in the vinyl composition tiles, the mastic mastic for the tiles, gypsum board joint compound, ceramic tile grout, built-up roofing, roofing felt paper, exterior plaster, and pipe insulation. No lead was recorded to be present in the building.
- Some of the clay tiles on the mansard roof have been damaged.
- Some roof leakage has been recorded in a report, although we did not see evidence of it. Investigation of the roof is recommended.

#### **b) STRUCTURAL**

#### Structural Evaluation Criteria:

Structural evaluation criteria for the buildings under study were the provisions of the Federal Emergency Management Agency document FEMA 310, Handbook for the Seismic Evaluation of Buildings – A Prestandard, dated January 1998. This document provides a three-tiered process for identifying seismic deficiencies in existing buildings in any region of seismicity.

Using the FEMA 310 procedure, buildings are evaluated to either the Life Safety or Immediate Occupancy performance level. Typically, Immediate Occupancy performance levels are required of "essential facilities" that are required to be functional following an earthquake. The Life Safety performance level, which was used in the evaluation of the buildings under study, is intended to evaluate the building performance with respect to life safety only – structural damage is expected to occur in the event of strong ground shaking.

The procedure breaks down the structure evaluation into three phases. Tier 1, the Screening Phase, is meant to quickly identify buildings which comply with the provisions of FEMA 310 and require no further evaluation, to familiarize the design professional with the building, and to identify potential structural deficiencies. Tiers 2 and 3, the Evaluation and Detailed Evaluation Phases, go into detailed evaluation of potential deficiencies identified in the Tier 1 evaluation. The current study addresses the Tier 1 Screening Phase of evaluation for the PX and Commissary buildings. For the purpose of the current study, it is assumed that potential structural deficiencies flagged by the Tier 1 evaluation will be confirmed with further study to in fact be deficiencies.

Structural alterations recommended in this report are derived from two sources:

- 1) Those required in order to mitigate suspected deficiencies resulting from outdated materials, design and construction practices, and
- Those associated with accommodating configuration changes required for a proposed building reuse.

#### Existing Structural System:

The vertical load resisting system for both the main building (605) and concessions wing (606) consists of a cast-in-place gypsum concrete deck reinforced with hexagonal mesh and trussed tees at 32 ½ inches on center, supported on open web steel joists spaced at 4 feet and spanning from 15 to 82 feet. The steel joists are supported on steel beams and columns, which are in turn supported by a reinforced concrete grade beam and precast pile foundation system. Exterior framing lines are infilled with steel studs. The vertical system for the arcade consists of plywood topped 2x tongue and groove board sheathing supported on sawn lumber framing and steel columns. The arcade foundation is an extension of the grade beam and pile system, which serves the two main structures. The vertical load resisting system for the Warehouse Addition consists of an untopped steel deck supported on open web steel joists on 6-foot centers spanning from 20 to 56 feet. Steel channel and tube columns rest on a reinforced concrete mat and precast pile foundation system.

The lateral load resisting systems for the main building and concessions wing consist of lightly reinforced cast-in-place gypsum concrete diaphragms carrying lateral forces to diagonal steel braces along the exterior beam and column lines. The main building has two chevron-braced bays in each exterior building line. The concessions wing has two single diagonal braced bays (one in each direction) in each exterior building line. Bracing forces are transferred to the reinforced concrete grade beam and precast concrete pile foundation system by double angles and anchor bolts. The concessions wing roof is supported laterally by a combination of anchorage to main building and columns, and by cantilevered reinforced concrete encasement around additional steel columns. The lateral system for the warehouse addition consists of an untopped steel

deck diaphragm delivering loads to flat bar crossed braced steel frames and reinforced concrete structural slab and precast pile foundations.

#### Structural Evaluation:

The FEMA 310 Tier 1 Investigation revealed the following potential structural deficiencies:

- The number of braced bays in each line of braced frames are equal to two for both the main building and the concessions wing, and one for the warehouse addition. FEMA 310 Tier 1 requires more than two bays be braced in each line of braced frames.
- Diaphragm to beam connections at both the main building and the concessions wing are suspected to lack strength to adequately transfer seismic forces.
- Quick check of axial tension in the warehouse addition braces fails to satisfy FEMA 310 requirements.
- Seismic gap between main building and warehouse addition does not comply with recommended minimum.

See Appendix C for a full report.

#### c) MECHANICAL

There are two main air-handling systems each serving roughly half of the sales floor space. Each system comprises outside air louver and damper, a supply fan with chilled water cooling coil, filters, a duct mounted gas furnace and a sheet metal ductwork air distribution system; sheet metal return air ductwork, a return air fan, return air and exhaust air dampers and an exhaust louver.

Both systems can operate on full outside air when ambient conditions are appropriate.

The supply and return ductwork is concealed in the ceiling space and air is delivered through linear slot ceiling diffusers.

Chilled water comes from a Trane air-cooled chiller located in a service yard just outside the mechanical room. There is an air compressor to provide air for the pneumatic control system.

Engineering drawings for the original building show neither the chilled water system nor the duct heaters, indicating that the building was intended to be ventilated only. The chilling and heating equipment seems to be the same vintage as the air handling, so we suspect that the heating and cooling was added during the original construction.

The chiller appears to be in poor condition. Insulation of the evaporator and piping outside the building has deteriorated significantly and there is a lot of rust on the casing, evaporator, fans, piping and fittings. The unit was not operating during our inspection so we cannot comment on its performance. Given its likely age (around 30 years) it would appear to be at, or very close to, the end of its useful life.

The air handling systems appear to be operating satisfactorily. They are constant volume and represent a single zone for each of the two units. This is reasonable for the building's present occupancy but may not be appropriate for different kinds of occupancy.

Mechanical ventilation systems are provided for the Stockroom (supply and exhaust) and for the various toilet rooms in the building (exhaust only).

The concessions wing, attached to but separate from the Main PX building, has its own air conditioning system comprising a multizone air handling unit with a separate zone for each concession. Cooling is provided from an air cooled chiller located in an external enclosure and heating is from a duct mounted gas furnace. The system appears to be operating on all outside air, in which case heating and cooling operating costs will be high. Such system characteristics are undesirable in any reuse option. The chiller was covered with a tarpaulin and appeared to be in poor condition. It gives the impression of being inoperable.

The warehouse addition has separate mechanical ventilation systems comprising three ducted supply systems and three roof-mounted exhaust fans. There are four gas fired unit heaters.

All buildings are protected with wet pipe fire sprinkler systems.

#### d) ELECTRICAL

The electrical service for the main building and the concessions wing are two separate services from a common pad mounted transformer. The electrical services originate from the Presidio aerial electrical distribution system via a pole drop to a main service pad mounted oil filled transformer, 4160-volt delta to 480/277 volt three phase delta, located outside adjacent to PX main retail facility stock room space and behind the concessions wing.

The main building facility's 800 amp. main switchboard is located within the employee break room behind bi-fold doors. The secondary electrical distribution is located in two locations. The mechanical room containing electrical distribution at 480/277 volt, three phase and transformation, 30KVA, to 208/120 volt three phase for the mechanical system, the emergency lighting system control panel, the main telephone backboard and fire alarm panel. The second distribution location is the north wall of the stock room warehouse, along which is electrical distribution at 480/277 volt, three phase and transformation, 30KVA, to 208/120 volt three phase for the mechanical system, the lighting system control panel, public address junction box. There is one 208/120 volt three-phase panel in the small stock room at the rear of the sales area and in the offices at the front of the facility that serve receptacles in the sales area.

Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates, Inc. Section Three: PX Analysis Page 8 of 20 The electrical distribution equipment appears to be in reasonably good condition given its 30-year age.

The lighting fixtures in the sales area consist of recessed 2'x4' lay in lensed fixtures with two T12 lamps, 277 volt ballasts, mounted in continuous rows at 10' centers and numerous track mounted fixtures at 120 volt located at the sales area perimeter. The lighting fixtures in the office areas consist of recessed 2'x4' lay in lensed fixtures with two T12 lamps. The lighting fixtures in the stock, mechanical and storage areas consist of suspended 4' industrial fixtures with two T12 lamps mounted in non-continuous rows. The fixtures throughout the facility appear to be in reasonably good condition. The controls for the lighting fixtures are via time clock initiated contactor controlled panelboards.

The fire alarm system is a single zone system with automatic dialer. The system is assumed to be functioning.

The public address system consists of an amplifier and speakers located throughout the facility. The system is assumed to be functioning.

The Main telephone system consists of a main incoming service and backboard with punch down blocks and equipment to serve the present retail building configuration. There are a limited number of handsets located throughout the building. This backboard also appears to be a termination point for the in-house LAN system.

The Annex's 150 amp. main switch and meter center is located in the concessions wing mechanical room. The electrical distribution at 480/277 volt, three phase and transformation, 45KVA, to 208/120 volt three phase secondary distribution. All the concession's tenants share the electrical distribution.

The lighting fixtures in the annex tenant area consist of recessed 2'x4' lay in lensed fixtures with two T12 lamps, 277-volt ballasts, mounted in non-continuous rows. The controls for the lighting fixtures are via time clock initiated relay controlled circuits.

The public address system speakers extend from the main sales facility. The system is assumed to be functioning.

#### **B. MUSEUM REUSE ALTERNATIVE**

#### 1. PROGRAM NOTES

The program was modified from the one listed in Section Two, due to the fact that the PX building is almost one-half the area as the Commissary building. Leaving the Reception, Café and Museum Store full size, all other areas were reduced by one-half for planning the new layout.

#### 2. ACCOMMODATION DIAGRAM

See following page for the conceptual accommodation plan of the PX as a museum facility, along with supporting structural plans showing the modifications necessary to seismically brace the building to meet current code requirements and to reflect the proposed floor plan modifications. An explanation of specific building modifications (architectural, structural, mechanical and electrical) necessary to realize the plan follows.



Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.



Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

CRISSY FIELD CENTER 24

COLLECTIONS MAYAGEMENT · 4300 58

Configurational Dessible sloped floor @ Theater Seismic DAdd braced frames w/fdths - 2 Add Collectors



### **POST EXCHANGE - STRUCTURAL MODIFICATIONS**

Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.



### **POST EXCHANGE - STRUCTURAL MODIFICATIONS**

Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.



### Post Exchange - Structural Modifications

Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

#### 3. BUILDING MODIFICATIONS DESCRIPTION

Specific modifications to the existing building that would be necessary to accommodate the proposed museum reuse plan include the following:

#### a) ARCHITECTURE/CODE

For the building to function as a museum, all interior construction of both the main building and the concessions wing would be required to be demolished. It is recommended that all finishes be stripped to the basic structure, as there appears to be little construction worth saving. In addition, major seismic strengthening and replacement of the mechanical and electrical systems would be required.

We would propose connecting the concessions wing with the main store and warehouse addition to create one building for use as a museum. To do this would require enclosure of the west-end of the concessions wing, and the creation of openings in the main store wall adjacent to the arcade.

The museum could be organized as follows: using the existing entrances of the building, one would enter a large reception area with control access desk to purchase tickets. Opening off the reception space would be a café, two seminar rooms, a museum store, coat check, toilets, a theater with 250 seats, and the galleries. The reception hall would be designed in such a way that all areas could remain open and separate from the gallery areas. Administration areas would be accessible through the café, and the collections management and temporary exhibit staging areas would be at the rear of the building, accessible to the existing loading dock.

As the existing building is virtually windowless (except for the front entry area), we would propose new window openings in the concessions wing at the administration areas and café; along the north wall of the galleries; and around the existing warehouse for galleries, the collections management, and the temporary exhibition staging areas. The exterior would require repainting. Repairs to the clay tile mansard roof would be necessary to replace broken tiles. A new built-up roof would be required, as the existing tar and gravel roof shows the need for replacement. At the existing loading dock area, a canopy would be required to protect the artwork as it is being unloading.

With the existing interior construction removed, existing accessibility deficiencies could be corrected by new interior construction. Such deficiencies include entrance doors, interior door widths, toilet rooms, and emergency exiting.

A brief description of each major space follows along with the quality of construction proposed. The proposed materials follow the Presidio's goal to use sustainable, durable, and low maintenance materials:

 Reception: large room allowing its use as a gallery area, major circulation space, and after-hours reception space. Finishes proposed would include stone floors and
base, gypsum board walls, and a suspended wood acoustic paneled ceiling with indirect and direct track lighting.

- Museum Store: the store, opening off the reception area, would have stone floors, shelving for display of products, a suspended wood acoustic ceiling with indirect and direct track lighting.
- Café: the café would serve as a refreshment and luncheon area for visitors, providing a quiet respite from the galleries. Since the café would be located off the reception area, via a glazed corridor, we would propose a continuation of the stone flooring, wallcovering on the walls, and a suspended wood acoustic paneled ceiling with indirect lighting.
- Theater: the theater would be a sloped floor theatre with fixed seating, allowing all
  visitors a clear view of the stage or screen. Used mainly as a movie theater, the
  floors would be carpeted, walls would have wood acoustic panels, and the
  structure would be exposed overhead and painted with suspended lighting. Due to
  the large occupancy, new emergency exits would be required to the exterior.
- Galleries: for maximum flexibility, the galleries would be constructed as one large open volume, with wood floors, painted gypsum board walls and exposed structure overhead with suspended track lighting. It would be the responsibility of the museum to install gallery walls to support the artwork and displays. Some new glazed openings with shade control would be proposed to allow natural light into some areas.
- Administration: the administration area, consisting of offices, staff areas, and staff toilets will have carpeted floors (tile in the toilets), painted gypsum board walls and suspended acoustical panel ceilings with indirect lighting.
- Collections Management and Temporary Exhibit Staging areas: these areas would serve as an unloading, uncrating, temporary and permanent art storage, and exhibition preparation areas. The proposed areas include the new window openings, linoleum flooring, painted gypsum board ceilings, and suspended acoustical panel ceilings with indirect lighting.

# b) STRUCTURAL

By constructing braced frames in each direction of each building portion, all suspected structural deficiencies (except the building gap issue) could be mitigated. It is assumed that the building gap issue can be tolerated.

Structural work required to accommodate configuration changes associated with building reuse would include construction of a raised sloping floor at the theater.

See structural plans for more details.

#### c) MECHANICAL

The existing chillers are unserviceable so a new chiller and chilled water pump, with capacity for the whole complex, would be required.

Much of the existing building has no air conditioning so there would be a need for several new systems, serving the Theater, the eastern section of the Galleries (about 3700 s.f.), Temporary Exhibit Staging and Collections Management. We presume that systems providing normal comfort conditions would be adequate, rather than special systems capable of very close tolerance of temperature and humidity.

The existing air conditioning systems, with some modifications, should be adequate to serve the 11,550 s.f. Galleries (provided that there is no need for multiple thermal zoning), Administration, Reception, Coats, Museum Store, Education and Café.

A new mechanical ventilation system would be needed for the Men's and Women's rest rooms.

A new HVAC control system would be required, preferably the direct digital type.

The existing fire sprinkler system should be adequate, apart from relocation of sprinkler heads to suit new wall and ceiling layouts. Replacement of all existing sprinklers with new quick response type is recommended.

Capacity of the existing sewer, storm water and domestic water lines should be adequate. New plumbing would be required for the Men's and Women's rest rooms and the Café.

#### d) ELECTRICAL

The existing main electrical service from the aerial distribution would remain along with the pad-mounted oil filled transformer, 4160-volt delta to 480/277 volt three phase delta. A containment curb would need to be built around the transformer to meet current code requirements. The transformer capacity should be sufficient for the proposed facility.

The main electrical meter and switchboard, along with the secondary distribution currently located outside the existing mechanical rooms, would need to be relocated to another location. This would entail new in-slab or concrete encased conduits from the transformer pad location to the new main meter and switchboard location. A room or closet along the exterior south wall of the Temporary Exhibit Staging area would suffice. Panel boards and transformers to serve the various spaces should be located as close as practical to their loads. This would especially be true for the Café and the Theater.

The existing lighting fixtures would need to be replaced with appropriate fixture types for the areas served. The existing lighting control system would require upgrading to current codes. The galleries and theater would require separate sophisticated lighting control and dimming systems for appropriate presentation in these spaces.

The existing fire alarm system cannot be reused. A new code-complying fire alarm system would need to be installed to meet the occupancy requirements for the entire building.

A security system would be required for the entire building.

The existing telephone service drop could be retained with new internal wiring to suit the proposed space requirements.

The existing public address system may be salvageable with new wiring and relocation of existing speakers. The theater would require a stand-alone, music quality sound system in keeping with the level of presentation desired.

# 4. PROBABLE COST

The estimated budget for construction as described by the foregoing would be \$10,654,000. See Appendix D for an itemized summary of costs.

# **C. RECREATION FACILITY REUSE ALTERNATIVES**

Two recreational facility options have been developed for the PX due to the size and existing physical limitations to support the aquatic center or gymnasiums. The two alternatives are denoted as recreation/aquatics and recreation/gymnasium.

# 1. PROGRAM NOTES

For the recreation/aquatics center, all program areas would be accommodated in the building except for the gymnasiums and racquetball and squash courts, which would be excluded because of insufficient existing building height.

For the recreation/gymnasium center, half of the roof of the main retail space would be raised to accommodate the height requirements for the gymnasium and racquetball and squash courts. The aquatic center would be deleted from this alternative.

#### 2. Accommodation Diagram

See following pages for the accommodation plans of the PX Recreation/Aquatics and Recreation/Gymnasium alternatives, along with structural plans showing the modifications necessary to seismically brace the building to meet current code requirements and to reflect the proposed floor plans. An explanation of the specific building modifications (architectural, structural, mechanical and electrical) necessary to support the concept alternatives follows. MASON STREET



POST EXCHANGE - RECREATION/AQUATICS ALTERNATIVE

Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

CRISSY FIELD CENTER F. Wood ATH STie F. PURDER ATHEETIL b: Nood W: Mileport | FTG, GWB C: CH, WI INDRECT CTA. L. P.L WI MIRAONS/ATA. GWB C: GHP. W INA WEELT LITE AGROBICS 2,250 14 (151-d1) N EFT: WALL

Section Three: PX Analysis



POST EXCHANGE - RECREATION/GYMNASIUM ALTERNATIVE

Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

•

CRISS ( FIELD CENTER AEROBICS 2,250.55 N 0

Section Three: PX Analysis

# MASON STREET



Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

Section Three: PX Analysis



# POST EXCHANGE - RECREATION/GYMNASIUM ALTERNATIVE - STRUCTURAL MODIFICATIONS

Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

wear were and and a state was a state where we have a CRISS-( FIELD CENTER AEROBICS 2,250 SF Configurational C Remove (E) roof structure Construct (N) roof structure - DAdd braced frames W/foths - DAdd collectors

Section Three: PX Analysis

#### 3. BUILDING MODIFICATIONS DESCRIPTION

Specific modifications to the existing building that would be necessary to accommodate the two recreation reuse plans include the following.

# a) ARCHITECTURE/CODE

Similar to the reuse museum option, all interior construction would be required to be demolished to convert the building to recreation use. It is recommended that all finishes be stripped to the basic structure, as there appears to be very little construction worth saving. In addition, major seismic strengthening and replacement of the mechanical and electrical systems would be required: replacement of it would be difficult around existing interior construction.

We would propose connecting the concessions wing to the main store and warehouse facilities to create one building for use in either recreation scheme. To do this would require enclosure of the west-end of the concessions wing and the creation of openings in the main store wall adjacent to the concession's vestibule.

# Recreation/Aquatics scheme:

The recreation/aquatics building would be organized as follows: an entrance to the former concessions arcade would become the main entrance to the building. Once inside, there would be a reception desk, a juicebar, access to administrative areas and a corridor leading to the locker rooms. The corridor would connect the childcare center, spinning studio and weight and stretching areas. Access to the aquatic center would be through the locker rooms. The former warehouse, accessed between the weight and stretching areas would contain the cardio equipment and two aerobics studios.

As the existing building is virtually windowless, new openings would be proposed in all exterior walls to bring natural light into the administrative areas, juicebar, childcare center, weight and cardio areas, and the aerobics studios. Infill of the existing loading dock doors with glazing would bring additional light into the aerobics studio. For the pool, excavation of the existing floor slab and soils underneath would be required. Shoring of the exterior walls around the aquatics center might be necessary. Similar to the museum reuse option, repair would be required to the mansard roof, and new built-up roofing would need to be installed.

With the removal of the existing interior construction, the existing accessibility deficiencies could be corrected by new interior construction. Such deficiencies include entrance doors, interior door widths, toilet rooms and emergency exiting.

# Recreation/Gymnasium scheme:

The recreation/gymnasium would basically be organized in the same manner as the recreation/aquatics scheme, except that a gymnasium, two racquetball courts, and one squash court would replace the aquatics center. To accomplish this, the western half of

the main store roof would have to be demolished and a new roof installed twelve feet higher that the current one.

All other modifications proposed for the recreation aquatics scheme would apply to this alternative as well.

# Interior notes:

A brief description of each major space within the two schemes follows along with the quality of construction proposed. The proposed materials follow the Presidio's goal to use sustainable, durable, and low maintenance materials.

- Reception: the reception area would be the main lobby for all users of the
  recreation center. It would contain the control desk and adjacent to it would be
  towel storage. Finishes proposed are carpeted floors, painted gypsum board walls,
  custom wood/metal reception desk, and a suspended acoustical panel ceiling with
  indirect lighting.
- Administration: the administration area, consisting of offices, employee areas, and sales office would have carpeted floors, painted gypsum board walls, and a suspended acoustical panel ceiling with indirect lighting.
- Juicebar: the juicebar would serve as a gathering and refreshment space for users of the recreation center. Located next to the lobby, we propose ceramic tile floors, wood panels for the walls and a special ceiling, such as metal panels, louvers, or plastic panels.
- Childcare center: a childcare center would be provided in most new recreation centers. Located adjacent to the lobby, it would be a room with linoleum and carpeted floor areas, painted gypsum board walls and glazing, and a suspended acoustical panel ceiling with indirect lighting.
- Exercise areas (stretching, weights, cardio): these areas, open to the circulation spline, would be large open spaces that will allow for the installation of equipment that would be provided by the owners (exclusive of construction costs). Floors would be rubber athletic flooring in the cardio and weight areas, carpet in the stretching areas. Walls would be painted gypsum board lined with athletic mirrors, and the ceilings would be painted exposed structure (14 – 16 feet high) with suspended indirect lighting.
- Aerobic studios: the studios, which are enclosed rooms to assist in sound transmission, would be large enough for classes of 30 – 40 people, and would contain wood athletic flooring, gypsum board walls lined with mirrors, and painted exposed structure (16 feet high) with suspended indirect lighting.
- Spinning (cycling) studio: similar to the aerobics studio, this room would have all of the same finishes except a rubber athletic floor instead of the wood floor.
- Locker Rooms: both women's and men's locker rooms would contain lockers, toilets, showers, steamrooms and saunas. The locker area would have carpeted floors, painted gypsum board walls, and a suspended acoustical panel ceiling with indirect lighting. The toilet, shower, sauna, steamroom area would contain ceramic tile floors and walls, and painted gypsum board ceilings with lensed recessed indirect lighting.

- Aquatic center: the aquatic center, which would contain a 25-meter lap pool, kids/therapy pool and whirlpool would have ceramic tile floors and walls, existing glazing at the former storefront and entrance, and suspended moisture-resistant acoustical panel ceilings with recessed light fixtures.
- Gymnasium: the gymnasium, large enough for one full basketball court or two half courts, would contain wood athletic flooring, painted gypsum board walls lined with wall protection panels, and painted exposed structure with suspended direct lighting.
- Racquetball and Squash Courts: all courts are prefabricated units which would include maple flooring, wood and laminate wall panels, and glazed front walls with glazed doors. The ceilings would be gypsum board with plastic laminate surfacing.

#### b) STRUCTURAL

By constructing braced frames in each direction of each building portion, all suspected structural deficiencies (except the building gap issue) could be mitigated. It is assumed that the building gap issue can be tolerated.

Structural work required to accommodate configuration changes associated with building reuse would include dropping the foundation system or raising the roof structure for the two recreation reuse alternatives, either a pool area or gymnasium.

See structural drawings for more details.

#### c) MECHANICAL

The existing chillers are unserviceable so a new chiller and chilled water pump, with capacity for the whole complex, would be required.

Much of the existing building has no air conditioning so there would be a need for several new systems, serving Cardio, both Aerobics areas, Spinning, Weights and Stretching.

The existing air conditioning systems, with some modifications, should be adequate to serve the Aquatic Center, Men's and Women's Lockers, Childcare, Towel Storage, Administration, Reception and Café. Ductwork serving the Aquatic Center should be made of corrosion resistant materials (stainless steel or PVC).

A new mechanical ventilation system would be needed for the rest rooms in the Men's and Women's locker rooms.

A new HVAC control system would be required, preferably the direct digital type.

The Aquatic Center would require separate filtration, sanitization and heating equipment for each of the three pools. Gas service to the building may need to be increased in size, piping would need to be extended from the existing mechanical room to the pool equipment room.

The existing fire sprinkler system should be adequate, apart from relocation of sprinkler heads to suit new wall and ceiling layouts. Replacement of all existing sprinklers with new quick response type would be recommended.

Capacity of the existing sewer, storm water and domestic water lines should be adequate. New plumbing would be required for the Men's and Women's rest rooms and the Juice Bar.

# d) ELECTRICAL

The existing main electrical service from the aerial distribution would remain along with the pad-mounted oil filled transformer, 4160-volt delta to 480/277 volt three phase delta. A containment curb would need to be built around the transformer to meet current code requirements. The transformer capacity should be sufficient for the proposed facility.

The main electrical meter and switchboard along with the secondary distribution currently located outside the existing mechanical rooms would need to be moved to another location. This would entail new in slab or concrete encased conduits from the transformer pad location to the new main meter and switchboard location. A room or closet along the exterior south wall of the Weights area would suffice. Panel boards and transformers to serve the various spaces should be located as close as practical to their loads. This is especially true for the Café. The locker rooms would require corrosion resistant fixtures and power distribution in this space.

The existing lighting fixtures would need to be replaced with appropriate fixture types for the areas served. The existing lighting control system would require upgrading to current code.

The existing fire alarm system cannot be reused. A new code complying fire alarm system would need to be installed to meet the occupancy requirements for the entire building.

The existing telephone service drop can be retained with new internal wiring to suit the new space requirements.

The existing public address system may be salvageable with new wiring and relocation of existing speakers. The spinning, cardio and aerobic areas would require a standalone music-quality sound system in keeping with the level of presentation desired. New scoreboard and clock facilities would be required for the gymnasium.

# 4. PROBABLE COST

The estimated budgets for construction as described by the foregoing alternatives would be:

\$12,167,000 for the recreation/aquatics scheme.

\$11,484,000 for the recreation/gymnasium scheme.

See Appendix D for an itemized summary of costs.

#### SECTION FOUR: COMMISSARY ANALYSIS

This section summarizes the findings associated with the Commissary. It includes an analysis of the existing building, accommodation studies which explore the potential conversion of the building for reuse as either a museum and recreation facility, supporting technical reports, and probable costs. This section is organized into the following subsections:

- A. Existing Conditions Description
  - 1. Location
  - 2. Physical
    - a) Architecture
    - b) Structural
    - c) Mechanical Systems
    - d) Electrical Systems
- B. Museum Reuse Alternatives
  - 1. Program Notes
  - 2. Accommodation Diagram
  - 3. Building Modifications Description
    - a) Architecture/Code
    - b) Structural
    - c) Mechanical
    - d) Electrical
  - 4. Probable Cost
- C. Recreational Facility Alternatives
  - 1. Program Notes
  - 2. Accommodation Diagrams
  - 3. Building Modifications Description
    - a) Architecture/Code
    - b) Structural
    - c) Mechanical
    - d) Electrical
  - 4. Probable Cost

# A. EXISTING CONDITIONS DESCRIPTION

# 1. LOCATION

The Commissary is located south of Mason Street from the west-end of Crissy Field's Tidal Marsh. The building is surrounded by a parking lot to the east, the Highway 101/Doyle Drive overpass to the south, storage and shed buildings to the west and Mason Street to the north. The PX sits opposite the east parking lot.

# 2. PHYSICAL

Sasaki Associates and its consultants evaluated the building in its current state and developed an analysis of what general modifications would be required to adapt the buildings to alternative uses under current codes. Specific building modifications associated with potential reuse of the Commissary as a museum or as a recreational facility is discussed in subsections B.3 and C.3 respectively. The following physical description is based upon site visits performed on May 9, 2001 and a review of construction documents that were provided by the Department of the Interior, National Park Service Archives. A detailed site survey was not performed, only general observations. At the commencement of any development projects for the Commissary, we would recommend a complete building assessment survey be completed.

#### a). ARCHITECTURAL

The Commissary building is in excellent condition, due to its young age and high quality construction. It contains high interior volume, large open structural spans, and all spaces are on one level, with the exception of a mechanical mezzanine. The Commissary building currently contains a large retail store, a warehouse for storage of drygoods, an office/administration area, and the retail support area, which includes meat, produce and deli preparation areas, walk-in refrigerators and freezers, and similar support rooms.

Due to all the specialized fixtures (walk-in refrigerators and freezers, meat/produce/deli preparation areas, and store fixtures) and spaces in the Commissary, a complete interior gut demolition is assumed for the building to be useful. Fortunately, most of the rooms and fixtures are constructed of non-load bearing construction, having a minimal impact on the building shell.

#### Size and Building Age:

The building contains 92,722 square feet in two buildings, an existing warehouse of 5,447 square feet (Building 653), built in mid-twentieth century and the major addition of 87,275 square feet (Building 610), built in 1989. The shape of the building is rectangular (400 feet in the north-south direction by 282 feet in the east-west direction). Building 610 was constructed as the Commissary and has had little modifications. Building 653 was constructed as a refrigeration warehouse and has been used as a dry goods warehouse supporting the Commissary since 1990. All areas are obtained from surveys provided by the Presidio Trust.

The interior areas are grouped as follows to aid in identification purposes:

- Retail Area
- Retail Support
- Office/Administration
- Warehouse

All the construction is on one level, except for the following areas:

- Mechanical and electric room mezzanine, which is located at the rear (west) side of the building, accessible by an exterior stairway.
- A steel framed mezzanine structure in the warehouse (which was added later by the owner) accessible by a steel stair within the warehouse.
- The drygoods warehouse (Building 653), in which the finished floor elevation is approximately 12-18" higher than the warehouse and is accessible via a ramp.

#### Construction Type:

Building 610 was constructed as a Type II – non-combustible building. The flooring is concrete slab on grade, the exterior walls are concrete tilt-up panels covered with plaster, and the roof is of steel beams and open-web steel joist construction topped by metal decking and a built-up tar-and-gravel roof. The exterior tilt-up panels and steel tube columns support the roof. A mansard red clay tile roof surrounds the warehouse walls. A hipped red clay tile roof is located along the front (east) of the building. All of the steel columns and beams are unprotected (non-fireproofed). The warehouse is separated from the retail and office area by a 2-hour rated occupancy separation wall. Interior construction consists of metal stud and painted gypsum board walls in the administrative and retail areas, and painted concrete block masonry for the 2-hour rated occupancy separation wall and retail support area.

Interior finishes are recorded in a later section of this memorandum.

Building 653 was constructed as a Type II – non-combustible building. The flooring is concrete slab on grade, the exterior walls are concrete masonry units, and the roof is steel framing with metal deck and built-up room. The steel beams are unprotected. The exterior of the building was clad in stucco and wood trim to match the Commissary, during the construction of the new building. The interior of the building has concrete floors, painted concrete masonry unit walls, and painted exposed steel roof.

#### Building Height:

Building 610 is a tall boxy building in comparison to the other buildings along the edge of Crissy Field. The tallest section of the building is the main lightwell over the sales area and the top of the roof is 36'-6" above grade. The top of the other lightwell over the entrance is 35'-8" above grade and the multiple ones over the sales area are 26'-0" above grade. The top of the warehouse and retail support area cornice is approximately 30'-0" above grade. The ground level on the west side of the building is 4'-0" below the rest of the building to accommodate the existing loading dock resulting along that side a building with a height of 34'-0".

The highest interior space is in the warehouse portion of the building, which has a clear interior height of 25'-2". The retail area has 12'-0" clear interior height (to the bottom of the lightwells), and 11'-6" clear height exists under the mechanical/electric room mezzanine.

Building 653, a shorter building than the Commissary, is approximately 14'-0" above grade on the north and east sides. On the west side, the ground drops 4'-0" to accommodate the existing loading dock, so the building is 18'-0" above grade.

The interior height clearance ranges from 13'-10'' along the perimeter walls to 15'-0'' in the center of the ridged roof.

#### Finishes and Materials:

Building 610 existing finishes are as follows: Floors:

- Sealed concrete in the warehouse, most of the retail support areas (including the walk-in refrigerators and freezers), mechanical and electrical rooms.
- Vinyl composition tiles (VCT) in the retail area, some offices, storage closets, employee breakrooms, and other miscellaneous areas. A hazardous survey has been performed on the building and has found evidence of asbestos in the VCT mastic.
- Carpet in the office areas.
- Quarry tile in the meat and deli preparation areas.
- Ceramic tile in the restrooms.

Walls:

- Painted concrete masonry units in the warehouse and in the retail support areas.
- Painted gypsum board/plaster in the offices and administrative areas.
- Ceramic tile in the restrooms, cart wash, and deli sales areas.
- Fiberglass liner panels in the retail area.
- Vinyl wallcovering in the employee breakrooms and retail waiting room. Ceilings:
- Acoustical 2'x4' panels in the office/administration areas, retail areas, breakrooms, and retail support rooms.
- Exposed painted metal roof deck and structure in the warehouse.
- Exposed painted concrete in some of the retail support areas.
- Painted plaster/gypsum board in the restrooms, locker rooms, soffits in retail area, and deli preparation.

Building 653 existing finishes are sealed concrete floors, painted concrete masonry unit walls and painted exposed metal deck and steel structure ceilings. Windows:

 Windows are limited to the east façade and are constructed of anodized aluminum mullions with clear glazing.

Doors:

- The exterior doors consist of aluminum and glass automatic bi-parting doors at the store entry, hollow metal elsewhere, and six roll-up coiling doors at the loading docks.
- Interior doors consist of solid core wood in the office/administration areas, hollow metal at the retail and retail support areas, and stainless steel for the walk-in coolers.

# Additional Observations:

During our site visit, we recorded the following items that would require repairs or upgrades for any renovation project:

- Items that do not meet current accessibility codes which would require corrections in any renovation effort:
  - All restrooms.
  - Door hardware (lever hardware required).
  - Handrails at exterior exit stairs (no rail extensions).
  - Fire protection controls, electrical outlets, light switches, and public telephones are mounted at incorrect heights.
- The roof has air bubbles in the tar underlayment. The manager of the commissary stated that the roof has had a few leaks, which was evident by viewing stained ceiling tiles in the retail area. Repair, or replacement, to the roof would be required.
- In the report, Asbestos Materials Re-survey and Lead-based Paint Investigation by Vesar, Inc. asbestos has been detected or assumed to be present in the vinyl composition tiles, the mastic for the tiles, grout in the ceramic tiled areas, pipe sealant/caulks/mastics, built-up roofing, roofing felt paper, and the exterior stucco. No lead was recorded to be present in the building.
- Roof canopies at the rear loading dock are damaged.
- Cracks are evident in some of the concrete floors and concrete masonry unit walls.
- The mechanical room on the mezzanine is not equipped with a fire sprinkler system.

# **b) STRUCTURAL**

# Structural Evaluation Criteria

Structural evaluation criteria for the buildings under study were the provisions of the Federal Emergency Management Agency document FEMA 310, Handbook for the Seismic Evaluation of Buildings – A Prestandard, dated January 1998. This document provides a three-tiered process for identifying seismic deficiencies in existing buildings in any region of seismicity.

Using the FEMA 310 procedure, buildings are evaluated to either the Life Safety or Immediate Occupancy performance level. Typically, Immediate Occupancy performance levels are required of "essential facilities" that are required to be functional following an earthquake. The Life Safety performance level, which was used in the evaluation of the buildings under study, is intended to evaluate the building performance with respect to life safety only – structural damage is expected to occur in the event of strong ground shaking.

The procedure breaks down the structure evaluation into three phases. Tier 1, the Screening Phase, is meant to quickly identify buildings which comply with the provisions of FEMA 310 and require no further evaluation, to familiarize the design professional with the building, and to identify potential structural deficiencies. Tiers 2 and 3, the Evaluation and Detailed Evaluation Phases, go into detailed evaluation of potential deficiencies identified in the Tier 1 evaluation. The current study addresses the Tier 1

Screening Phase of evaluation for the PX and Commissary buildings. For the purpose of the current study, it is assumed that potential structural deficiencies flagged by the Tier 1 evaluation will be confirmed with further study to in fact be deficiencies.

Structural alterations recommended in this report are derived from two sources:

- 1) Those required in order to mitigate suspected deficiencies resulting from outdated materials, design and construction practices, and
- Those associated with accommodating configuration changes required for a proposed building reuse.

#### Existing Structural System:

The vertical load resisting system for the high roof portions of the Commissary is an untopped steel deck supported by open web steel joists spanning from 12 to 20 feet, which rest on steel beams and tube columns. Low roof portions are untopped steel deck on steel framing (open-web joists and wide-flange beams) which includes several large skylight structures. Perimeter walls, and interior walls which separate high and low roof areas, are tilt-up concrete panels with cast-in-place pilasters. The foundation system consists of a reinforced concrete structural slab on precast concrete piles. The vertical system for the Refrigerated Warehouse consists of an untopped steel deck supported on unknown framing, resting on masonry walls and a concrete foundation of unknown materials and detailing.

The lateral load resisting systems for the Commissary building consist of an untopped steel deck diaphragm carrying lateral forces to concrete tilt-up walls and concrete structural slab and pile foundations along the buildings exterior lines and at transitions from high to low roof. The lateral system of the Refrigerator Warehouse is an untopped steel deck and masonry walls.

#### Structural Evaluation:

The FEMA 310 Tier 1 Investigation revealed no deficiencies in the main Commissary structural system. Although no drawings are available to verify the assumption, it can be reasonably assumed that for the Refrigerated Warehouse building will require wall to roof ties and possibly diaphragm strengthening prior to reuse.

Refer to Appendix C for the full report.

#### c) MECHANICAL

A single large air-handling system serves the entire sales and checkout area, which is constructed as a single thermal zone. The system comprises two air-handling units in series. The first just pre-cools outside air and comprises filters, direct expansion cooling coil and centrifugal fan. The second, and main section, comprises outside air and return air connections, filters, direct expansion cooling coil and centrifugal supply air fan. A gas furnace is mounted in the supply air ductwork immediately downstream from the unit. Air is distributed to the space via sheet metal insulated ductwork and ceiling mounted slot type air diffusers. A separate air-cooled condensing unit on the roof is piped to each cooling coil. Return air for the system is collected from below the refrigerated food cabinets and travels through underground ductwork to a riser, whence it rises up to the air-handling unit on the Mezzanine level. The system does not have outside air economy cycle.

There are three other small air conditioning systems comprising of an air-handling unit with filters, direct expansion cooling coil, dampers for outside air, return air and relief air and centrifugal fan serving various offices and administration areas. Two of these units have relief air fans; all have outside air economy cycle. Matching condensing units are located on the roof. Each also has its own duct-mounted gas furnace.

The computer room has a separate air-cooled split type air conditioning unit with no heating.

There are three supply air and twelve exhaust air fans mechanically ventilating rest rooms, storerooms and utility rooms.

There are nine gas fired unit heaters serving un-air conditioned storage spaces.

With the exception of some insulation coming away from large ducts in the mezzanine mechanical rooms all equipment and systems seemed to be in reasonable working order.

The building is fire sprinkler protected, except for the old cold storage portion in the northeast corner. A pump room at the northwest corner contains a fire pump, jockey pump and fire department connection on the exterior wall. The computer room is protected with a Halon 1301 suppression system.

#### d) ELECTRICAL

The electrical service for the Commissary is from a pad-mounted transformer. The electrical service originates from the Presidio underground electrical distribution system via underground duct bank to a main service pad-mounted oil filled transformer, 12470v/7200Y to 480/277 volt three phase wye located on the west side of the facility adjacent to the refrigerated storage area.

The Commissary facility's 2000 amp. main switchboard is located on the mechanical mezzanine. The secondary electrical distribution is located in four main locations. The mechanical mezzanine containing electrical distribution at 480/277 volt, three phase and transformation, 300KVA, to 208/120 volt three phase for the refrigeration defrost, mechanical and lighting systems controls. The emergency lighting system control panel, the main telephone backboard and fire alarm panel is also located on this mezzanine. The second distribution location is the east wall of the dry storage warehouse, along which is electrical distribution at 480/277 volt, three phase for the lighting, mechanical system and transformation, 45KVA, to 208/120 volt three phase for the administration offices receptacles. The third distribution location is the south wall of the dry storage

warehouse, along which is electrical distribution at 480/277 volt, three phase for the lighting system and transformation, 45KVA, to 208/120 volt three phase for the rest room and break room receptacles. There is one twenty foot long 480/277 volt three phase bus duct on the west wall of the dry storage warehouse that serves the recharging units for the materials handling equipment. The fourth distribution location is the electrical room located adjacent to the checkout line in the sales area. This room contains electrical distribution at 480/277 volt, three phase for the lighting system and transformation, 45KVA, to 208/120 volt three phase for the checkout line registers and conveyors and receptacles in the sales area. The computer room in the administration office area has a 208/120 volt, three phase panel to serve the computer equipment.

Standby power is provided to the facility from a skid mounted diesel generator unit, 50KW 480/277 volt, three phase, located on the west side of the facility adjacent to the refrigerated storage area. The standby power distribution is via a 100 amp. Three phase automatic transfer switch that serves the computer room panel and the sales check out line scanners and conveyors.

Additional standby power is provided for with an 800 amp. manual transfer switch that serves the refrigeration compressors and condensing units. The standby service consists of empty conduits leading to the loading dock area for possible attachment of a portable generation unit.

The electrical distribution equipment appears to be in very good condition given its 14year age.

The lighting fixtures in the sales area consist of recessed 2'x2' lay in lensed fixtures with one 400W HID lamp, 277 volt ballasts, mounted in sloped sky light and 2'x4' lay in lensed fixtures with four T12 lamps, 277 volt ballasts, mounted in beams between the sky light openings. The lighting fixtures in the office areas consist of recessed 2'x4' lay in lensed fixtures with two T12 lamps. The lighting fixtures in the dry storage area consist of suspended industrial HID fixtures with one HPS lamp with dual level control mounted in rows. The lighting fixtures in the mechanical and storage areas consist of suspended 4' industrial fixtures with two T12 lamps mounted in non-continuous rows. The lighting fixtures in the walk in refrigeration coolers consist of surface or suspended 4' enclosed lensed industrial fixtures with two T12 lamps mounted in non-continuous rows. Building exterior lighting consists of wall mounted 175W HID wall packs. The fixtures throughout the facility appear to be in good condition. The control for the lighting fixtures is via time clock initiated contactor controlled panelboards.

The fire alarm system is a multiple zone system with automatic dialer. The system is assumed to be functioning.

The public address system consists of an amplifier with intercom interface and speakers located throughout the facility. The system is assumed to be functioning.

The Main telephone system consists of a main incoming service and backboard with punch down blocks and equipment to serve the present retail building configuration. There are a limited number of handsets located throughout the building. This backboard also appears to be a termination point for the in-house LAN system.

The security system consists of a master control panel with manual duress and magnetic initiated alarm outlets located throughout the main sales facility. The system is assumed to be functioning.

# **B. MUSEUM REUSE ALTERNATIVE**

#### 1. PROGRAM NOTES

All areas included in the program can be accommodated within the Commissary building because of its large square footage and open plan. Structural modifications would be necessary to provide the theater a clear span, free from columns interrupting the space.

# 2. ACCOMMODATION DIAGRAM

See the following page for the accommodation plan of the Commissary as a museum facility, along with structural plans showing the modifications necessary to provide a clear span theater. An explanation of specific building modifications (architectural, structural, mechanical and electrical) necessary to realize the plan follows.



Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

Section Four: Commissary Analysis





Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

Configurational DW40x362 Bms W/W14x90 cols @Theater Draised slopma floor @theater Seismie 3 Add Wall fies and Diaphragm strengthquing 5 2 D S X Í ADMINISTER TION 5,000.4

Section Four: Commissary Analysis

#### 3. BUILDING MODIFICATIONS DESCRIPTION

Specific modifications to the existing building that would be necessary to accommodate the proposed museum reuse plan include the following:

# a) ARCHITECTURE/CODE

For the building to function as a museum, all interior construction would be required to be demolished, as there is very little construction worth saving, except for the concrete wall that currently divides the warehouse from the store. All other construction, especially the existing walk-in coolers and freezers would require demolition in order to obtain the open spaces necessary to support the galleries and theater.

The building would be organized as follows: using the existing exits of the building, one would enter a large reception area containing a control access desk to purchase tickets. Opening off the reception space would be a café (which could be also accessed by the former store entrance), a museum store, coat check, toilets and the primary entrance to the galleries. Through a wide corridor/gallery spline, access to two seminar rooms and a theater with 500 seats would be provided. The reception would be designed in such a way that all areas can remain open separate from the gallery areas. Administration areas would be accessed from the circulation/gallery spline. Collections management and the temporary exhibit staging areas would be at the rear of the building, accessible to the existing loading docks. The galleries would be located in two areas; in the former store sales floor which would take advantage of the existing skylights, and behind the theater, in the former warehouse, allowing high ceiling galleries (up to 25 feet high) for display of large objects. The two gallery areas would be connected by a central corridor/gallery spline, which could be used as additional display space.

As the existing building is virtually windowless (except for the front entry area), we would propose new window openings in the administration, collections management and the temporary exhibition staging areas. The exterior would require repainting. Replacement of the existing damaged loading dock canopies would be necessary. A new built-up roof would be required, as evidence of bubbles in the existing tar and gravel was recorded.

With the existing interior construction removed, existing accessibility deficiencies would be corrected by new interior construction. Such deficiencies include entrance doors, interior door widths, toilet rooms, and emergency exiting.

A brief description of each major space follows along with the quality of construction proposed. The proposed materials follow the Presidio's goal to use sustainable, durable, and low maintenance materials:

 Reception: large room allowing its use as a gallery area, major circulation space, and after-hours reception space. Finishes proposed would include stone floors and base, gypsum board walls, and modifications to the existing skylight well (replacement of the acoustical panels with wood panels, and motorized shades at the glass). Lighting would be indirect and direct track lighting.

- Museum Store: the store, opening off the reception area, would contain stone floors, shelving for display of products, and modified existing skylight with indirect and direct track lighting.
- Café: the café would serve as a refreshment and luncheon area for visitors, providing a quiet respite from the galleries. Since the café is located off the reception area we would propose a continuation of the stone flooring, wallcovering and special surfaces on the walls, and similar modifications to the existing skylights as the reception space. Lighting would be a combination of indirect lighting and direct pendants.
- Theater: the theater would be a sloped floor theatre with fixed seating, allowing all visitors a clear view of the stage or screen. Used mainly as a movie theater, the floors would be carpeted, walls would have wood acoustic panels, and the structure would be exposed overhead, painted, with suspended lighting. Due to the large occupancy, new emergency exits would be required, leading to the exterior.
- Galleries: for maximum flexibility, the galleries would be constructed as two large open volumes, with wood floors, painted gypsum board walls and suspended track lighting. In the galleries proposed to be located in the former retail store, the existing skylights would require some modifications providing them with new acoustical panels and motorized shades at the glass. For the galleries proposed to be located in the former warehouse section, painted exposed structure would be proposed with new skylights added to provide natural light. It would be the responsibility of the museum to install gallery walls to support the artwork and displays.
- Administration: the administration area, consisting of offices, staff areas, and staff toilets would have carpeted floors (ceramic tile in the toilets), painted gypsum board walls and suspended acoustical panel ceilings with indirect lighting. Three new openings, including a ramp, would be proposed to connect the former refrigerated warehouse with the store.
- Collections Management and Temporary Exhibit Staging areas: these areas would serve as an unloading/uncrating area, provide temporary and permanent art storage, and could contain exhibition preparation areas. The proposed areas include the new window openings, linoleum flooring, painted gypsum board ceilings, and suspended acoustical panel ceilings with indirect lighting. The existing loading dock would be reused.
- Circulation/Gallery Spline: this space, proposed to be a significant display and circulation path through the building, would be proposed to have stone floors, painted gypsum board and plaster walls. The ceilings would contain some of the existing skylights modified similarly to those in the galleries, and wood acoustical panels. Lighting would be a combination of downlighting and track lighting.

# **b) STRUCTURAL**

Structural work at the main Commissary building would be limited to that required to accommodate configuration changes associated with building reuse. These alterations

include construction of a raised sloping floor at the theater area, and installing new beams and columns to allow elimination of columns for the theater. The Refrigerated Warehouse building will likely require the above-mentioned wall ties and diaphragm strengthening regardless of the preferred reuse option.

#### c) MECHANICAL

Much of the existing building has no air conditioning so there would be a need for several new systems, serving the Theater, Galleries (8,100 s.f.), Temporary Staging, Collections Management and Administration. We presume that the systems providing normal comfort conditions will be adequate, rather than those capable of very close tolerance of temperature and humidity.

The existing air conditioning systems (air cooled condensing units and indoor air handling units), with some modifications, should be adequate to serve Reception, Coats Storage, Café and the Galleries (16,800 s.f.) provided that there is not a need for multiple zoning. A new return air system would be required as the existing system uses underfloor ducts. They would need to be filled in and the vertical riser removed. The outside air arrangement would also need to be changed to incorporate an economy cycle.

Some of the existing smaller systems should be able to be modified to serve Administration and Education.

A new mechanical ventilation system would be needed for the Men's and Women's rest rooms.

A new HVAC control system would be required, preferably the direct digital type.

The existing fire sprinkler system would need to be extended into the Administration (5000 s.f.) area. Elsewhere it appears to be adequate, apart from relocation of sprinkler heads to suit new wall and ceiling layouts. Replacement of all existing sprinklers with new quick response type would be recommended.

Capacity of the existing sewer, storm water and domestic water lines should be adequate. New plumbing would be required for the Men's and Women's rest rooms and the Café.

# d) ELECTRICAL

The existing main electrical service from the underground electrical distribution would remain along with the pad-mounted oil filled transformer, 12470v/7200Y to 480/277 volt three phase wye. A containment curb would need to be built around the transformer to meet current code requirements. The transformer capacity should be sufficient for the proposed facility.

The electrical secondary distribution currently located outside the existing mechanical mezzanine may need to be moved to other locations. This would entail new aboveceiling and/or in-wall electrical raceways along with rooms or closets to house the electrical equipment. Panel boards and transformers to serve the various spaces would need to be located as close as practical to their loads. This would be especially true for the Café and the Theater.

The existing lighting fixtures would need to be replaced with appropriate fixture types for the areas served. The existing lighting control system would require upgrading to current code. The galleries and theater would require separate sophisticated lighting control and dimming systems for appropriate presentation in these spaces.

The existing fire alarm system cannot be reused. A new code complying fire alarm system would need to be installed to meet the occupancy requirements for the entire building.

The existing telephone service drop may be retained with new internal wiring to suit the new space requirements.

A new security system would be required for the entire building.

The existing public address system may be salvageable with new wiring and relocation of existing speakers. The theater will require a stand-alone music-quality sound system in keeping with the level of presentation desired.

# 4. PROBABLE COST

The estimated budget for construction as described by the foregoing would be \$18,791,000. See Appendix D for an itemized summary of costs.

# C. RECREATION FACILITY REUSE ALTERNATIVE

#### 1. PROGRAM NOTES

All programmed spaces would fit into the Commissary and could be larger than its programmed area allotment due to the efficient layout of the building, however in order to achieve the clear spans needed for the gymnasiums and aquatic center, structural modifications would be required. Due to the high ceilings required for the gymnasiums, racquetball courts and squash their location would be limited to the former warehouse section of the building.

# 2. Accommodation Diagram

See following pages for the accommodation plans of the Commissary as a recreation facility, along with structural plans showing the modifications necessary to provide the clear spans. An explanation of specific building modifications (architectural, structural, mechanical and electrical) necessary to realize the plan follows.



Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

Section Four: Commissary Analysis



Presidio Reuse Analysis of PX and Commissary Technical Memorandum Sasaki Associates Inc.

#### 3. BUILDING MODIFICATIONS DESCRIPTION

Specific modifications to the existing building that would be necessary to accommodate the recreation reuse plan include the following.

# a) ARCHITECTURE/CODE

Similar to the reuse museum option, all interior construction would be required to be demolished to convert the building to recreation use. It is recommended that all finishes be stripped to the basic structure, except for the existing concrete masonry wall that separates the warehouse from the main retail area, as there is very little construction worth saving.

The recreation facility would be organized as follows: using the former sales floor exits for the new entrances, one would enter the lobby reception space. Once inside, there would be a reception desk, a juicebar, access to administrative areas, a childcare center (which could be accessed separately through the former retail entrance) and aquatics center. A corridor running in the east-west direction from the lobby would lead people to the locker rooms, a seminar room, weight, stretching and cardio areas and the two gymnasiums. The locker rooms would flank the aquatics center. A corridor, running in the north-south direction, would lead to the former warehouse areas, which could contain the spinning (cycling) studio, two racquetball courts, two squash courts, and three aerobics studios.

As the building is virtually windowless, new openings would be proposed in the exterior walls to bring natural light into the administrative areas and aerobics studios. Infill of the existing loading dock doors with new glazing would bring additional natural light into the cardio and gymnasium areas. For the pool, excavation of the existing floor slab and soils underneath would be required. Shoring of the exterior walls around the aquatics center might be necessary. Replacement of the roofing would be necessary, as signs of water damage and bubbling of the existing built-up roof was recorded.

With the removal of existing interior construction, existing accessibility deficiencies could be corrected by new interior construction. Such deficiencies include entrance doors, interior door widths, toilet rooms, and emergency exiting.

#### Interior notes:

A brief description of each major space follows along with the quality of construction proposed. The proposed materials follow the Presidio's goal to use sustainable, durable, and low maintenance materials:

Reception: the reception area would be the main lobby for all users of the recreation center. It would contain the control desk and towel storage. Finishes proposed would be carpeted floors, painted gypsum board walls, and a custom wood/metal reception desk. The existing skylights overhead would be equipped with new acoustical panels. Lighting would be a combination of downlights and pendants.

- Administration: the administration area, consisting of offices, employee areas, and sales office would have carpeted floors, painted gypsum board walls, and a suspended acoustical panel ceiling with indirect lighting.
- Juicebar: the juicebar would serve as a gathering and refreshment space for users of the recreation center. Located next to the lobby, we would propose ceramic tile floors, ceramic tile walls, and keeping the existing skylight overhead. Lighting would be a combination of downlights and pendant fixtures.
- Childcare center: a childcare center would be provided, as in most recreation centers. Located adjacent to the lobby and along the exterior glazed wall, it would be a room containing linoleum and carpeted floor areas, painted gypsum board walls and interior glazing. The existing skylight overhead would be equipped with new acoustical panels. Lighting would be a combination of downlights and indirect pendant fixtures.
- Exercise areas (stretching, weights, cardio): these areas, which could be open to the circulation areas, would be large open spaces for the installation of exercise equipment that would be provided by the owners. Floors would be rubber athletic flooring in the cardio and weight areas, carpet in the stretching areas, walls are painted gypsum board lined with athletic mirrors. The ceiling in the weight and stretching areas are would be topped with the existing skylights containing new acoustical panels. The ceiling in the cardio, which would sit under the mechanical and electrical room mezzanine, would be suspended acoustical panels with indirect pendant lighting.
- Aerobic studios: the studios, which would be enclosed rooms to control sound transmission, would be large enough to hold classes of 30 – 70 people, containing wood athletic flooring, gypsum board walls lined with mirrors. Two of the rooms would have suspended acoustical panel ceilings, while the one in the old refrigerated warehouse would have painted exposed structure (13 feet high) with suspended indirect lighting.
- Spinning (cycling) studio: which is similar to the aerobics studio, would have all of the same finishes except it would have a rubber athletic floor instead of the wood floor.
- Locker Rooms: both women's and men's locker rooms would contain lockers, toilets, showers, steamrooms and saunas. The locker area would have carpeted floors, painted gypsum board walls, and the existing skylights with direct and indirect lighting. The toilet, shower, sauna, steamroom area would contain ceramic tile floors and walls, and existing skylights, modified to all gypsum board for moisture control.
- Aquatic center: the aquatic center, containing a 25-meter lap pool, kids/therapy pool and whirlpool would have ceramic tile floors and walls, and the existing skylights modified with moisture resistant acoustical panels. Lighting would be a combination of direct and indirect.
- Gymnasium: the gymnasiums, large enough for one full basketball court or two half courts each, would contain wood athletic flooring, painted gypsum board walls with wall protection panels, and painted exposed structure with suspended direct lighting.

 Racquetball and Squash Courts: all courts would be prefabricated units that would include maple flooring, wood/laminate wall panels, and glazed front walls with glazed doors. The ceilings would be gypsum board with plastic laminate surfacing.

# b) STRUCTURAL

Structural work at the main Commissary building would be limited to that required to accommodate configuration changes associated with building reuse. These alterations include dropping the foundation system for the pool area, and installing new beams and columns to allow elimination of columns at both the gymnasium and pool areas. The Refrigerated Warehouse building will likely require the above-mentioned wall ties and diaphragm strengthening.

#### c) MECHANICAL

Much of the existing building has no air conditioning so there would be a need for several new systems, serving the Cardio, both Gymnasia, Spinning, the Squash and Racquetball courts and Aerobics area in the north east corner.

The existing air conditioning systems (air cooled condensing units and indoor air handling units), with some modifications, should be adequate to serve the Aquatic Center, Weights, Stretching, Administration, Men's and Women's Lockers, Juice Bar and Childcare. A new return air system would be required as the existing system uses underfloor ducts. They would need to be filled in and the vertical riser removed. The outside air arrangement would also need to be changed to incorporate an economy cycle.

Some of the existing smaller systems should be able to be modified to serve the two Aerobics areas

Ductwork serving the Aquatic Center should be made of corrosion resistant materials (stainless steel or PVC).

A new mechanical ventilation system would be needed for the rest rooms in the Men's and Women's locker rooms.

A new HVAC control system would be required, preferably the direct digital type.

The Aquatic Center would require separate filtration, sanitization and heating equipment for each of the three pools. Gas service to the building would need to be increased in size, piping would need to be extended from the existing mechanical room to the pool equipment room.

The fire sprinkler system would need to be extended into the Aerobics area in the north east corner. Elsewhere, the existing fire sprinkler system should be adequate, apart from relocation of sprinkler heads to suit new wall and ceiling layouts. Replacement of all existing sprinklers with new quick response type would be recommended.

Capacity of the existing sewer, storm water and domestic water lines should be adequate. New plumbing would be required for the Men's and Women's rest rooms and the Juice Bar.

# d) ELECTRICAL

The existing main electrical service from the underground electrical distribution would remain along with the pad-mounted oil filled transformer, 12470v/7200Y to 480/277 volt three phase wye. A containment curb would need to be built around the transformer to meet current code requirements. The transformer capacity should be sufficient for the proposed facility.

The electrical secondary distribution currently located outside the existing mechanical mezzanine may need to be relocated to other locations. This would entail new above ceiling and/or in wall electrical raceways along with rooms or closets to house the electrical equipment. Panel boards and transformers to serve the various spaces should be located as close as practical to their loads. This is especially true for the Café and the Aquatic Center pool equipment. The Aquatic Center and locker rooms would require corrosion resistant fixtures and power distribution in these spaces.

The existing lighting fixtures would need to be replaced with appropriate fixture types for the areas served. The existing lighting control system would require upgrading to current code.

The existing fire alarm system cannot be reused. A new code complying fire alarm system will need to be installed to meet the occupancy requirements for the entire building.

The existing telephone service drop can be retained with new internal wiring to suit the new space requirements.

The existing public address system may be salvageable with new wiring and relocation of existing speakers. The spinning, cardio and aerobic areas would require a standalone music-quality sound system in keeping with the level of presentation desired. New scoreboard and clock facilities will be required for the gymnasium.

#### 4. PROBABLE COST

The estimated budget for construction as described by the foregoing alternative is \$19,562,000. Refer to Appendix D for an itemized summary of costs.
#### CONTRIBUTORS

# Presidio Reuse Analysis of PX and Commissary SA #14017.00

### **The Presidio Trust**

Hillary Gitelman, Deputy Director for Planning Carey Feierabend, Planning Manager Chandler McCoy, Project Manager Kay Voyvodich, Cultural Programs Director

### Sasaki Associates Inc.; Architects & Planners

Richard Galehouse, Principal John Coons, Principal Diana Kissil, Project Manager Richard Tepp, Project Architect Mark Hoffheimer, Planner

### Tuan & Robinson; Structural Engineers

Eugene Tuan, Principal Jeff Van Dyke, Structural Engineer

### Glumac International, Inc.; Mechanical & Electrical Engineers

Kevin Dowling, Principal Michael Suttie, Mechanical Engineer Robert Scott, Electrical Engineer

### Davis Langdon Adamson, Cost Consultants

Ethan Burrows

### LIST OF DOCUMENTS

Presidio Reuse Analysis of PX and Commissary SA #14017.00

### **General Plans**

<u>Creating a Park for the 21" Century from Military Post of National Park, Filed General</u> <u>Management Plan Amendment, Presidio of San Francisco</u>, July 1994.

Presidio Trust Draft Implementation Plan, July 2001.

<u>Creating a "Living Cultural Experience" at the Presidio</u>, Draft, Presidio Cultural Planning Team.

<u>Presidio Institute Program Development & Accommodation Study</u>, Technical Memorandum, Sasaki Associates, November 2000.

<u>Presidio Crissy Field Implementation Planning</u>, Technical Memorandum, Sasaki Associates, November 2000.

<u>Presidio Mason Street Alternatives Study</u>, Technical Memorandum, Sasaki Associates, August 2001.

### **Environmental Assessments**

Presidio Trust, Draft Environmental Impact Statement, July 2001.

#### **Technical Documents**

Selections from: <u>Prototype Building Assessments and Rehabilitation Studies</u>, Architectural Resources Group, April 1992.

Crissy Field Building Information (floor plans, condition, etc), Presidio Trust.

<u>Asbestos Materials Re-Survey and Lead-based Paint Investigation</u>, Versar, Inc., January 25, 1996.

<u>FEMA 310, Handbook for the Seismic Evaluation of Buildings – A Pre-standard</u>, Federal Emergency Management Agency, January 1998.

Construction Documents "Main Exchange Retail Store", Leo A. Daly Company, Architects, October, 15, 1970.

Construction Documents "Warehouse Addition to Main Store", Leo A. Daly Company, Architects, October 18, 1974.

Construction Documents "Commissary", U.S. Army, June 11, 1987.

### **Misc.** Correspondence

Pacific Coast Immigration Museum Space Requirements, National Park Service Planning & Partnerships Team, June 14, 2001.

Memorandum, Port of San Francisco, evaluation of the Piers 27-31 Mixed Use Recreation Development Project, April 16, 2001.

San Francisco Bay Area Multi-park Archival & Museum Collections Storage & Use Area Needs, National Park Service, October 13, 2000.

Appendix A - STRUCTURAL FEMA 310 TIER 1 ANALYSIS

Structural Calculations for

## Presidio Commissary and PX Buildings FEMA 310 Tier 1 Analysis

Client: Sasaki Associates, Inc. Issued: July 2001 Project Number: 2001.057



Tuan and Robinson Structural Engineers, Inc. 347B Healdsburg Avenue Healdsburg, CA 95448 (707)433-2506 TEL (707)433-2465 FAX jvandyke@trseinc.com EMAIL

PROJECT SE **Tuan and Robinson** Structural Engineers, Inc. JOB NO. -05 221 Main Street, Suite 545 BY DATE -0 San Francisco, CA 94105-1915 SHEET NO. OF 415/957-2480 Fax 415/957-2483 MAIN POST EXCHANGE MAIN EXCITANCE ANNEX WAREHOUSE ADDITION TIER 1 ANALYSIS SUMMARU NON COMPLIANT ITEMS: D Number at brackd boys IN each or all three portions of building edundancy 1aphracm shear rans. er is ShSpect ( es w PSWM concrete fill on great Seismic gap bet ween main blde and warehouse addition is 2" FEMA 310 calls for 4% of height FEMA Puich check of axic wavehouse addition exceeds allowable. axia ness 11 5 bracing STRUCTURAL ALTERATIONS: By adding braced frames in direction of Each Portion esdued. A should be resdi can be tolerated.

## MAIN POSTEXCHANGE & MAIN EXCHANGE ATTIEX

### 3.7.4 Basic Structural Checklist For Building Type S2: Steel Braced Frames With Stiff Diaphragms

This Basic Structural Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this Handbook, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

### Commentary:

These buildings consist of a frame assembly of steel beams and steel columns. Floor and roof framing consists of cast-in-place concrete slabs or metal deck with concrete fill supported on steel beams, open web joists or steel trusses. Lateral forces are resisted by tension and compression forces in diagonal steel members. When diagonal brace connections are concentric to beam column joints, all member stresses are primarily axial. When diagonal brace connections are eccentric to the joints, members are subjected to bending and axial stresses. Diaphragms consist of concrete or metal deck with concrete fill and are stiff relative to the frames. When the exterior of the structure is concealed, walls consist of metal panel curtain walls, glazing, brick masonry, or precast concrete panels. When the interior of the structure is finished, frames are concealed by ceilings, partition walls and architectural furring. Foundations consist of concrete spread footings or deep pile foundations.

### **Building System**

c	NC	N/A	LOAD PATH: The structure shall contain one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)
C	NC	N/A	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)
C	NC	N/A)	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80% of the strength in an adjacent story above or below for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)
C	NC	N/A	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70% of the stiffness in an adjacent story above or below or less than 80% of the average stiffness of the three stories above or below for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)
С	NC	(N/A)	GEOMETRY: There shall be no changes in horizontal dimension of the lateral-force-resisting system of more than 30% in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses. (Tier 2: Sec. 4.3.2.3)
Ċ	NC	N/A	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)

Chapter 3.0 - Screening Phase (Tier 1)			
			_
C	NC	(N/A)	MASS: There shall be no change in effective mass more than 50% from one story to the next for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.5)
C	NC	N/A	TORSION: The distance between the story center of mass and the story center of rigidity shall be less than 20% of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)
¢	NC	N/A	DETERIORATION OF STEEL: There shall be no visible rusting, corrosion, cracking or other deterioration in any of the steel elements or connections in the vertical- or lateral-force-resisting systems. (Tier 2: Sec. 4.3.3.3)
C	NC	N/A	DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)
			Lateral Force Resisting System
С	NC	N/A	AXIAL STRESS CHECK: The axial stress due to gravity loads in columns subjected to overturning forces shall be less than $0.10F_y$ for Life Safety and Immediate Occupancy. Alternatively, the axial stress due to overturning forces alone, calculated using the Quick Check Procedure of Section 3.5.3.6, shall be less than $0.30F_y$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.3.2)
С	NC	N/A	REDUNDANCY: The number of lines of braced frames in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. The number of braced bays in each line shall be greater than 2 for Life Safety and 3 for Immediate Occupancy. (Tier 2: Sec. 4.4.3.1.1)
C	NC	N/A	AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 3.5.3.4, shall be less than 18 ksi or $0.50F_y$ for Life Safety and for Immediate Occupancy. (Tier 2: Sec. 4.4.3.1.2)
C	NC	N/A	COLUMN SPLICES: All column splice details located in braced frames shall develop the tensile strength of the column. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.3.1.5)
			Connections
С	NC	N/A	TRANSFER TO STEEL FRAMES: Diaphragms shall be connected for transfer of loads to the steel frames for Life Safety and the connections shall be able to develop the shear strength of the frames for Immediate Occupancy. (Tier 2: Sec. 4.6.2.2)
C	NC	N/A	STEEL COLUMNS: The columns in lateral-force-resisting frames shall be anchored to the building foundation for Life Safety and the anchorage shall be able to develop the tensile capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.1)

**FEMA 310** 

.

1

3.7.4S Supplemental Structural Checklist For Building Type S2: Steel Braced Frames With Stiff Diaphragms			
This Su Checkli	ipplei ist sha	mental S all be co	Structural Checklist shall be completed when required by Table 3-2. The Basic Structural ompleted prior to completing this Supplemental Structural Checklist.
			Lateral Force Resisting System
С	NC	N/A)	MOMENT-RESISTING CONNECTIONS: <u>All moment connections shall</u> be able to develop the strength of the adjoining members or panel zones. (Tier 2: Sec. 4.4.1.3.3)
С	NC	(N/A)	COMPACT MEMBERS: All moment frame elements shall meet compact section requirements set forth by the Load and Resistance Factor Design Specification for Structural Steel Buildings (AISC, 1993). This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.1.3.7)
C	NC	(N/A)	STIFFNESS OF DIAGONALS: All diagonal elements required to carry compression shall have KI/r ratios less than 120. This statement shall apply to the <u>Immediate Occupancy Performance Level</u> only. (Tier 2: Sec. 4.4.3.1.3)
C	NC	(N/A)	CONNECTION STRENGTH: All the brace connections shall develop the yield capacity of the diagonals. This statement shall apply to the <u>Immediate Occupancy Performance Level only.</u> (Tier 2: Sec. 4.4.3.1.4)
С	NC	(N/A)	OUT-OF-PLANE BRACING: Braced frame connections attached to beam bottom flanges located away from beam-column joints shall be braced out-of-plane at the bottom flange of the beams. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.3.1.6)
C	NC	N/A	K-BRACING: The bracing system shall not include K-braced bays. (Tier 2: Sec. 4.4.3.2.1)
С	NC	(N/A)	TENSION-ONLY BRACES: Tension-only braces shall not comprise more than 70% of the total lateral-force-resisting capacity in structures over two stories in height. (Tier 2: Sec. 4.4.3.2.2)
С	NC	(N/A)	CHEVRON BRACING: The bracing system shall not include chevron, or V-braced bays. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.3.2.3)
C	NC	(N/A)	CONCENTRIC JOINTS: All the diagonal braces shall frame into the beam-column joints concentrically. This statement shall apply to the <u>Immediate Occupancy Performance Level only</u> . (Tier 2: Sec. 4.4.3.2.4)
			Diaphragms
C	NC	N/A	OPENINGS AT BRACED FRAMES: Diaphragm openings immediately adjacent to the braced frames shall extend less than 25% of the frame length for Life Safety and 15% of the frame length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.5)
С	NC	N/A	PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at <u>re-entrant corners or other</u> locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)
C	NC	N/A	DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragms openings larger than 50% of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)
		•	

.

Seismic Evaluation Handbook

FEMA 310

• •

Connections C LATERAL LOAD AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be NC N/A anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)

;

# 3.7.4A Basic Structural Checklist For Building Type S2A: Steel Braced Frames With Flexible Diaphragms

This Basic Structural Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this Handbook, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

### Commentary:

These buildings consist of a frame assembly of steel beams and steel columns. Floor and roof framing consists of wood framing or untopped metal deck supported on steel beams, open web joists or steel trusses. Lateral forces are resisted by tension and compression forces in diagonal steel members. When diagonal brace connections are concentric to beam column joints, all member stresses are primarily axial. When diagonal brace connections are eccentric to the joints, members are subjected to bending and axial stresses. Diaphragms consist of wood sheathing or untopped metal deck and are flexible relative to the frames. When the exterior of the structure is concealed, walls consist of metal panel curtain walls, glazing, brick masonry, or precast concrete panels. When the interior of the structure is finished, frames are concealed by ceilings, partition walls and architectural furring. Foundations consist of concrete spread footings or deep pile foundations.

### **Building System**

C	NC	N/A	LOAD PATH: The structure shall contain one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)
C	NC	N/A	ADJACENT BUILDINGS: An adjacent building shall not be located next to the structure being evaluated closer than 4% of the height for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.1.2)
C	NC	N/A	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)
С	NC	N/A	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80% of the strength in an adjacent story above or below for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)
C	NC	N/A	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70% of the stiffness in an adjacent story above or below or less than 80% of the average stiffness of the three stories above or below for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)
С	NC	(N/)	GEOMETRY: There shall be no changes in horizontal dimension of the lateral-force-resisting system of more than 30% in a story relative to adjacent stories for Life Safety and Immediate

			Chapter 3.0 - Screening Phase (Tier 1)
Ċ	NC	N/A	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)
С	NC	(N/A)	MASS: There shall be no change in effective mass more than 50% from one story to the next for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.5)
С	NC	(N/A	DETERIORATION OF WOOD: There shall be no signs of decay, shrinkage, splitting, fire damage, or sagging in any of the wood members and none of the metal accessories shall be deteriorated, broken, or loose. (Tier 2: Sec. 4.3.3.1)
c	NC	N/A	DETERIORATION OF STEEL: There shall be no visible rusting, corrosion, cracking or other deterioration in any of the steel elements or connections in the vertical- or lateral-force-resisting systems. (Tier 2: Sec. 4.3.3.3)
			Lateral Force Resisting System
Ċ	NC	N/A	AXIAL STRESS CHECK: The axial stress due to gravity loads in columns subjected to overturning forces shall be less than $0.10F_y$ for Life Safety and Immediate Occupancy. Alternatively, the axial stress due to overturning forces alone, calculated using the Quick Check Procedure of Section 3.5.3.6, shall be less than $0.30F_y$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.3.2)
С	NC	N/A	REDUNDANCY: The number of lines of braced frames in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. The number of braced bays in each line shall be greater than 2 for Life Safety and 3 for Immediate Occupancy. (Tier 2: Sec. 4.4.3.1.1)
C	NC	N/A	AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 3.5.3.4, shall be less than 18 ksi or 0.50F <sub>y</sub> for Life Safety and for Immediate Occupancy. (Tier 2: Sec. 4.4.3.1.2)
C	NC	N/A)	COLUMN SPLICES: All column splice details located in braced frames shall develop the tensile strength of the column. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.3.1.5)
			Connections
C	NC	N/A	TRANSFER TO STEEL FRAMES: Diaphragms shall be connected for transfer of loads to the steel frames for Life Safety and the connections shall be able to develop the shear strength of the frames for Immediate Occupancy. (Tier 2: Sec. 4.6.2.2)
c	NC	N/A	STEEL COLUMNS: The columns in lateral-force-resisting frames shall be anchored to the building foundation for Life Safety and the anchorage shall be able to develop the tensile capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.1)

Z

3.7.4AS		Supplemental Structural Checklist For Building Type S2A: Steel Braced Frames With Flexible Diaphragms			
This S Checkl	This Supplemental Structural Checklist shall be completed when required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.				
			Lateral Force Resisting System		
С	NC	(N/A)	MOMENT-RESISTING CONNECTIONS: All moment connections shall be able to develop the strength of the adjoining members or panel zones. (Tier 2: Sec. 4.4.1.3.3)		
С	NC	(N/A)	COMPACT MEMBERS: All moment frame elements shall meet compact section requirements set forth by the <i>Load and Resistance Factor Design Specification for Structural Steel Buildings</i> (AISC, 1993). This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.1.3.7)		
C	NC	N/A	STIFFNESS OF DIAGONALS: All diagonal elements required to carry compression shall have Kl/r ratios less than 120. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.3.1.3)		
C	NC	(N/A)	CONNECTION STRENGTH: All the brace connections shall develop the yield capacity of the diagonals. This statement shall apply to the <u>Immediate Occupancy Performance</u> Level only. (Tier 2: Sec. 4.4.3.1.4)		
C	NC	N/A	OUT-OF-PLANE BRACING: Braced frame connections attached to beam bottom flanges located away from beam-column joints shall be braced out-of-plane at the bottom flange of the beams. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.3.1.6)		
C	NC	N/A	K-BRACING: The bracing system shall not include K-braced bays. (Tier 2: Sec. 4.4.3.2.1)		
С	NC	N/A	TENSION-ONLY BRACES: Tension-only braces shall not comprise more than 70% of the total lateral-force-resisting capacity in <u>structures over two stories in height</u> . (Tier 2: Sec. 4.4.3.2.2)		
С	NC	(N/A)	CHEVRON BRACING: The bracing system shall not include chevron, or V-braced bays. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.3.2.3)		
C	NC	N/A	CONCENTRIC JOINTS: All the diagonal braces shall frame into the beam-column joints concentrically. This statement shall apply to the <u>Inunediate Occupancy Performance Level</u> only. (Tier 2: Sec. 4.4.3.2.4)		
			Diaphragms		
C	NC	N/A	CROSS TIES: There shall be continuous cross ties between diaphragm chords. (Tier 2: Sec. 4.5.1.2)		
C	NC	N/A	OPENINGS AT BRACED FRAMES: Diaphragm openings immediately adjacent to the braced frames shall extend less than 25% of the frame length for Life Safety and 15% of the frame length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.5)		
С	NC	N/A	PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the <u>Immediate Occupancy Performance Level</u> only. (Tier 2: Sec. 4.5.1.7)		

ţ.

C	NC	N/A	DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragms openings larger than 50% of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)
C	NC	N/A	STRAIGHT SHEATHING: All straight sheathed diaphragms shall have aspect ratios less than 2 to 1 for Life Safety and 1 to 1 for Immediate Occupancy in the direction being considered. (Tier 2: Sec. 4.5.2.1)
C	NC	(N/A)	SPANS: All wood diaphragms with spans greater than 24 ft. for Life Safety and 12 ft. for Immediate Occupancy shall consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Tier 2: Sec. 4.5.2.2)
С	NC	N/A	UNBLOCKED DIAPHRAGMS: All unblocked wood structural panel diaphragms shall have horizontal spans less than 40 ft. for Life Safety and 25 ft. for Immediate Occupancy and shall have aspect ratios less than or equal to 4 to 1 for Life Safety and 3 to 1 for Immediate Occupancy. (Tier 2: Sec. 4.5.2.3)
С	NC	N/A	NON-CONCRETE DIAPHRAGMS: Untopped metal deck diaphragms or metal deck diaphragms with fill other than concrete shall consist of horizontal spans of less than 40 ft. and shall have aspect ratios less than 4 to 1. This statement shall apply to the <u>Immediate Occupancy Performance Level</u> only. (Tier 2: Sec. 4.5.3.1)
			Connections
C	NC	N/A	LATERAL LOAD AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)
			5
			Ξ.
A 310			Seismic Evaluation Handbook 3 -

•

PX REUSC PROJECT **Tuan and Robinson** Structural Engineers, Inc. JOB NO. 1001 057 221 Main Street, Suite 545 BY DATE 7-51 San Francisco, CA 94105-1915 SHEET NO. OF 25 415/957-2480 Fax 415/957-2483 PRESIDIO OF SAN FRANCISCO MAIN EXCHANGE (PX) BUILDING 1970 STRUCTURAL DESIGN BY LEO A. DALY COMPANY BLDG DIMENSIONS APPILOX: 165×177=29000 ARCADE 400005F FOUNDATIONS: PRECAST CONCRETE PILES, GRADE BEAMS, & STRUCT SLAD ON GRADE VERTICAL SUSTEM: 2" CAST. IN-PLACE GYPSUM PIAPHRAGM ON OPEN WEB STEEL JOISTS @ 4'OC ON WIDE FLANGE BEAMS ON WIDE FLANGE COLUMNS. LATERAL SYSTEM: 2" CITST IN PLACE GYPSUM DIAPHRAGIM TO STEEL BRACED WALLS OTITER: STEEL STUD INFILL EXT. WALLS. PIND OVER 2X DECK APCADE FOOF.

.

Ĩ.	Tuan and Robinso Structural Engineers, I 221 Main Street, Suite 5- San Francisco, CA 94109 415/957-2480 Fax 415/	DN Inc. 45 5-1915 957-2483	PROJECT RX RELL JOB NO. 2001-05 BY JUD DATE SHEET NO. 12 OF 2	5 7- 01 -5
	BUILDING PXBUDGS	THPE &	INVESTIGATION MESSILCLASSD	Pephits
		$S_{s} = 1$ $S_{s} = 0$ $F_{a} = 1$	5 ,75	2002 0.2.5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
		$F_{V} = 1$ $S_{PS} = 2$ $S_{P_{1}} = 2$	$\frac{5}{2/3}$ = 1.0070.5 $\frac{7}{3}$ = $\frac{10070.5}{70.75}$ 70.2	
		S REGI	ON OF SEISMICITY CZ	
		) DESI12 PEPEI IS LIF	ED LEVEL RFORMANTE E SAFETY(LS)	ti i nining nining internet nining i
		BUILD IS STE FRAM ZIGID	EL BRACEN E WITH PIAPHRAGIN	э • • эк •
		SZA C PESIG 1970	NED IN PRESUMABLY	2
a	*	PER V NOT EFLERI RE	BENCHIMARK ZHRED INVESTIGATION QUIRED	

Reuse STICH PROJECT **Tuan and Robinson** Structural Engineers, Inc. JOB NO. 209 .02 221 Main Street, Suite 545 BY DATE San Francisco, CA 94105-1915 SHEET NO. OF 415/957-2480 Fax 415/957-2483 EXCHANGE & MAIN EXCHANGE MAIN ANNEX AXIAL STRESS DUE TO GRAVITY LOADS IN COLLIMINTS SUBJECT TO OVERTURNING MAIN BUILDING TYPICAL FRAME COLUMN ON LINE 9 0217 TRIB AREA = 82×22/2=9025F DEAD -LOADING: 6.0 ROOFING 2.0 NSULATION 30,0 4P CONS W/FORM TOISTS BEAMS 7.0 CEILING .0 MECH/ELECT 2. MUSC' SPRINKLERS 2.0 580 a2=52,3h PD==( Arol =  $f_a = 52.3 / 7.35 = 7.11 + h_{si}$  $F_y = 36 | 25i$ 7.1+= 0.19. Fy 70.10 Fy (CONT.)

51 PROJECT 50 **Tuan and Robinson** Structural Engineers, Inc. JOB NO. 2001 .057 221 Main Street, Suite 545 BY DATE 1-0 San Francisco, CA 94105-1915 SHEET NO. OF 9: 415/957-2480 Fax 415/957-2483 ALTERZNATIVELY, CHECK AXIAL STRESS DUE TO OVERTURNING ALONE Pot = 1 2 m 3 hn -(Life Satety M = 0 SaW=108312 NP= 8 IN/= 581 -15(1/ 17602 See +h,3/4 = +=0,2 7.35 = 9.49 2 1-3.6-12 9.49 = 0.26 Fy < 0.3 Fy Complies FOR FRAMES ON LINES AEN fa=(69.7/7.35×11/10125)=10,17/251 10.17 = 0.28 Fy < 0.3 Fy Complies (CONT)

CUSE PROJECT ua **Tuan and Robinson** Structural Engineers, Inc. JOB NO. 200-, Di 221 Main Street, Suite 545 BY DATE D -0 San Francisco, CA 94105-1915 SHEET NO. OF 415/957-2480 Fax 415/957-2483 ANNEX BUILDING TYPICAL COLUMN & PIAGONAL BRACE: TPIB AREA = (19.25 × 12) = 231 SF (LINES 24)  $p_{+1} = 231(58+16) = 17.12$ TP-1B 12×12=144 SF (LINES HELL AREA = a = 7.1 = 2.32 bs1 << 0,3 Fy On COLUMN ¥1 ZES-S CHE OhrP

PROJECT stwar STE. **Tuan and Robinson** Structural Engineers, Inc. JOB NO. 221 Main Street, Suite 545 BY DATE San Francisco, CA 94105-1915 -0 SHEET NO. OF 415/957-2480 Fax 415/957-2483 AXIAL BRACING STRESS CHECK ANNEX BUILDING Lbr = 2.9 ksi - << 18 ksi OL 2 by Ahr M= (. SaW=34 3×1:41421 ame 34 = 0.56 = 62×126 2 ( 20,20 nr= BUILDING MAIN 12)(Lbr/Ar) = 5,65 bsi < 18/251 -56r = m (YSN 1083-M 11 20.25 BRACING AKIAL STRESS CHECK COMPLIES

DELISE Strov PROJECT **Tuan and Robinson** Structural Engineers, Inc. 2001 .257 JOB NO. 221 Main Street, Suite 545 BY DATE -0 San Francisco, CA 94105-1915 OF 125 SHEET NO. 415/957-2480 Fax 415/957-2483 WAREHOUSE ADDITION TO PX AXIAL STRESS DUE TO GRAVITY LOAPS IN COLS SUBJECT TO OVERTWRNING CHECK COL @ D4  $P_{p_{1}} = 28 (27 \times 24 + 4 \times 12) = 20.8^{L}$  $A_{col} = 5.59 \text{ in}^{2}$ 5a=20.8/5.59=3.72kgi 3.72 = 0,10 Oh AXIAL STRESS IN DIAGONALS Vi Lbr = 20.23 ni 718ksi Nor Abr (non complian = CSaW = 24 V = 31 V = 31 Sa = 0 W = 3= 0,5

	Tuan and Robinson Structural Engineers, Inc. 221 Main Street, Suite 545 San Francisco, CA 94105-1915 415/957-2480 Fax 415/957-2483Communication	PROJECT ( DMIMISSADY DEUKO JOB NO. 2001.057 BY JVD DATE 7-01 SHEET NO. 18 OF 25
	JIER   MNALYSIS	SUMMARU
	NO NON COMPLIA	WT LTEMS FOUND
$\cap$		
	and a survey of the second	
	5 MARTINE REP 10 1000 100 100 100 100 100 100	
	ి సిలిగారా సినిమోటింగా జారు	is to the Roll set in a line set
		* 8.00.9 an • 6.0 ki v
	e a g	

## COMMISSARY BUILDING

## 3.7.11 Basic Structural Checklist For Building Type PC1: Precast/Tilt-Up Concrete Shear Wall Buildings With Flexible Diaphragms

This Basic Structural Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this Handbook, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

### Commentary:

These buildings are one or more stories in height and have precast concrete perimeter wall panels that are cast on site and tilted into place. Floor and roof framing consists of wood joists, glulam beams, steel beams or open web joists. Framing is supported on interior steel or concrete columns and perimeter concrete bearing walls. The floors and roof consist of wood sheathing or untopped metal deck. Lateral forces are resisted by the precast concrete perimeter wall panels. Wall panels may be solid, or have large window and door openings which cause the panels to behave more as frames than as shear walls. In older construction, wood framing is attached to the walls with wood ledgers. Foundations consist of concrete spread footings or deep pile foundations.

	3	
		Building System
(c) n	CN/	A LOAD PATH: The structure shall contain one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)
C N	C N/	A ADJACENT BUILDINGS: An adjacent building shall not be located next to the structure being evaluated closer than 4% of the height for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.1.2)
C N	C N/.	A MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)
C NO	: (N/)	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80% of the strength in an adjacent story above or below for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)
C NO	N/A	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70% of the stiffness in an adjacent story above or below or less than 80% of the average stiffness of the three stories above or below for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)
C NC	N/A	GEOMETRY: There shall be no changes in horizontal dimension of the lateral-force-resisting system of more than 30% in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses. (Tier 2: Sec. 4.3.2.3)
<u>, 19</u> . 98 . 99	2 1 1 1 1	the second se

Seismic Evaluation Handbook

(c)	NC	N/A	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)
c	NC	N/A	MASS: There shall be no change in effective mass more than 50% from one story to the next for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.5)
(c)	NC	N/A	DETERIORATION OF WOOD: There shall be no signs of decay, shrinkage, splitting, fire damage, or sagging in any of the wood members and none of the metal accessories shall be deteriorated, broken, or loose. (Tier 2: Sec. 4.3.3.1)
Ċ	NC	N/A	PRECAST CONCRETE WALLS: There shall be no visible deterioration of concrete or reinforcing steel or evidence of distress, especially at the connections. (Tier 2: Sec. 4.3.3.6)
			Lateral Force Resisting System
C	NC	N/A	REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)
Ċ	NC	N/A	SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than 100 psi or $2\sqrt{f_c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.3.1)
C	NC	<b>N/A</b> .	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be greater than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18" for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.3.2)
			Connections
(c)	NC	N/A	WALL ANCHORAGE: Exterior concrete or masonry walls shall be anchored for out-of-plane forces at each diaphragm level with steel anchors or straps that are developed into the diaphragm. (Tier 2: Sec. 4.6.1.1)
C I	NC	N/A	PRECAST WALL PANELS: Precast wall panels shall be doweled into the foundation for Life Safety and the dowels shall be able to develop the strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.6.3.7)
(c) r	NC	N/A	GIRDER/COLUMN CONNECTION: There shall be a positive connection between the girder and the column support. (Tier 2: Sec. 4.6.4.1)

•

## 3.7.11S Supplemental Structural Checklist For Building Type PC1: Precast/Tilt-Up Concrete Shear Wall Buildings With Flexible Diaphragms

.

3 - 82

This Supplemental Structural Checklist shall be completed when required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

			Lateral Force Resisting System
C	C N	C N/A	COUPLING BEAMS: The stirrups in all coupling beams over means of egress shall be spaced at or less than d/2 and shall be anchored into the core with hooks of 135° or more for Life Safety and Immediate Occupancy. In addition, the beams shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)
C	) N	C N/A	WALL OPENINGS: Openings shall constitute less than 75% of the length of any perimeter wall for Life Safety and 50% for Immediate Occupancy with the wall piers having aspect ratios of less than 2. (Tier 2: Sec. 4.4.2.3.3)
C	NC	C (N/A	CORNER OPENINGS: Walls with openings at a building corner larger than the width of a typical panel shall be connected to the remainder of the wall with collector reinforcing. (Tier 2: Sec. 4.4.2.3.4)
C	) NC	N/A	PANEL-TO-PANEL CONNECTIONS: Adjacent wall panels shall be interconnected to transfer overturning forces between panels by methods other than welded steel inserts. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.3.5)
C	NC	N/A)	WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the minimum unsupported height or length, nor less than 4". This statement shall apply to the <u>Immediate</u> Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.3.6)
			Diaphragms
$\bigcirc$	NC	N/A	CROSS TIES: There shall be continuous cross ties between diaphragm chords. (Tier 2; Sec. 4.5.1.2)
С	NC	N/A)	PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)
С	NC	(N/A)	DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragms openings larger than 50% of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)
С	NC	N/A	STRAIGHT SHEATHING: All straight sheathed diaphragms shall have aspect ratios less than 2 to 1 for Life Safety and 1 to 1 for Immediate Occupancy in the direction being considered. (Tier 2: Sec. 4.5.2.1)
С	NC	N/A	SPANS: All <u>wood diaphragms</u> with spans greater than 24 ft. for Life Safety and 12 ft. for Immediate Occupancy shall consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Tier 2: Sec. 4.5.2.2)
С	NC	NA	UNBLOCKED DIAPHRAGMS: All unblocked wood structural panel diaphragms shall have horizontal spans less than 40 ft. for Life Safety and 25 ft. for Immediate Occupancy and shall have aspect ratios less than or equal to 4 to 1 for Life Safety and 3 to 1 for Immediate Occupancy. (Tier 2: Sec. 4.5.2.3)

Chapter 3.0 - Screening Phase (Tier 1) С NC N/A OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than those described in Section 4.5. (Tier 2: Sec. 4.5.7.1) Connections WOOD LEDGERS: The connection between the wall panels and the diaphragm shall not induce C NC N/A cross-grain bending or tension in the wood ledgers. (Tier 2: Sec. 4.6.1.2) PRECAST PANEL CONNECTIONS: There shall be at least two anchors from each precast wall NC N/A panel into the diaphragm elements for Life Safety and the anchors shall be able to develop the strength of the panels for Immediate Occupancy. (Tier 2: Sec. 4.6.1.4) LATERAL LOAD AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be NC N/A anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10) GIRDERS: Girders supported by walls or pilasters shall have at least two additional ties to secure NC N/A the anchor bolts for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.6.4.2)

COMMISSARY PROJECT REUSE Tuan and Robinson Structural Engineers, Inc. 200 JOB NO. .00 221 Main Street, Suite 545 IVD BY DATE 1-0 San Francisco, CA 94105-1915 SHEET NO. 23 OF 2 415/957-2480 Fax 415/957-2483 RESIDIO OF SAN FRANCISCO. SMMISATLY BUILDING 1987 STRUCTURAL DESIGN BY SHAPIRO, OKINO, HOM & ASSOC. BLDE PINENSIONS APPROX: 290 ×310 9,000 SF FDTN: PRECAST CONC PILES, SLAD-ON- GRADE STRUCTURA ERTICAL SMSTEM-19 GA STEEDEUL ON OPEN WEB STEEL JOLSTSCS'OC ON WIDE FLANGE BEAMS ON STEEL TUBE COLUMNS ATERAL SYSTEM: STEEL DECK TO TILT-UP CONCRETE WALLS MEZZANINE: 20 GA STEEL DECK W/ CONC FILL ON WIDE FLANGE JOISTS & BEAMS ON MASONRY INALLS.

PROJECT **Tuan and Robinson** Structural Engineers, Inc. JOB NO. 221 Main Street, Suite 545 BY DATE San Francisco, CA 94105-1915 SHEET NO. 24 OF 25 415/957-2480 Fax 415/957-2483 INVESTIGATION ROPINTS BULLDING TYPE to the Dhihiiss An2i SSIMPLE SOIL CLASSE Single story 7 a 55=0.90  $S_1 = I_1$ KEGLON OF SEISMICI DESIRED LE PERFORMANT BUILDING TYPE (S)LT-UP CONG SHEARWALLS WITH -LEXIBLE DIAPHRAGM 11LDING PC.1 4PE DESIGNED IN 1987 PE12 UBC < 1997 BUILDING TIER ESTIGAT LEANIZER

Tuan and Robinson Structural Engineers, Inc. 221 Main Street, Suite 545 San Francisco, CA 94105-1915 415/957-2480 Fax 415/957-2483 PROJECT CONTINISSARY LEUSE

JOB NO. 200 BY VD DATE 1-01 SHEET NO. OF 25

COMINLSSA BUILDING SHEAR STRESS CHECK 13.4 psi 25.9 psi ave Z. m Au M = 40M = 38=748x12×8=71808 EW; 36 NS Core 1.0 wall 12 = 4.58 S.D. 30×9 0000+100(13) -1200 = 42hn3/4 24-sec += 0.020 7 hn

Tuan and Restructural Engi 221 Main Street, San Francisco, C 415/957-2480 F	obinson neers, Inc. Suite 545 A 94105-1915 ax 415/957-2483	PROJECT	2000 MALSSARY (LEUSE 2001-057 JVD DATE 7-01 25 A OF 25
Commiss	SARY BEAN	n ¢ co	Lun. Nr5
W = (12)	+30)33 = 13	390 #/	
SPAN=	(20')		
M = (13)	$70)120^{2}/8 = 7$	2502	l- 1
$S_r = \frac{2}{0}$	502 × 12 = 13	90 in	ۍ ۱
$I_{t1} = 2$	$\frac{2.5(1390)1}{(29E6)9.0}$	204=	55905 in 4 4" 37271 in 4 6" 27953 8"
· }	$W \begin{array}{c} 40 \times 30 \\ 8 = 14 \\ 1 = 28 \end{array}$	200	$F = 85h$ $h = 27$ $W 14 \times 90$ $COLS$
SPAN	=75'		
M = (13)	90)752/8-	= 977	je_ ?
Sr = g	$\frac{77 \times 12}{2.6 \times 3.6} = 5$	42 m	<i></i>
$I_c = \frac{2}{2}$	2.5(1390)7: 29EGX 5.0	5 = 6	5824 in 4
	N36×170 S=580 J=105		$R = 52^{ln}$ $W 12 \times 65$ Cols

**Appendix B - CONSTRUCTION COST ESTIMATES** 

## PROGRAM COST MODEL FEASIBILITY STUDY

for

Presidio Trust PX and Commissary Re-Use Analysis San Francisco, California

Sasaki & Associates 900 North Point Street Ghirardelli Square, Suite B300

San Francisco, California 94109 Tel: (415) 776 - 7272 Fax: (415) 202 - 8970

December 1, 2001

DAVIS LANGDON ADAMSON CONSTRUCTION COST PLANNING AND MANAGEMENT 170 Columbus Avenue Suite 301 San Francisco California 94133 Tel: 415.981.1004 Fax: 415.981.1419 www.dladamson.com

### CONTENTS

	Page Nos.		
Basis of Estimate	ĩ		
Inclusions	2 - 4		
Exclusions	5		
Commissary Executive Summaries			
Museum Re-Use	6 - 7		
Athletic Facility Re-Use	8 - 9		
Postal Exchange Executive Summaries			
Museum Re-Use	10 - 11		
Athletic Facility Re-Use (Aquatic Center)	12 - 13		
Athletic Facility Re-Use (Version II - Gymnasium)	13 - 14		

### BASIS OF ESTIMATE

This Cost Model has been prepared from the following:	Dated	Received
Technical Memorandum Narrative PX Analysis & Commissary Analysis	07/17/01	07/17/01
Space Program (s) Tabulations	06/27/01	07/17/01
Structural & Architectural Plans (Annotated)	07/10/01	07/17/01

Discussions with the Project Architect and Planners

Conditions of Construction

The pricing is based on the following general conditions of construction

The costs shown assume construction will not be phased and that buildings will be unoccupied during construction

The general contract(s) will be procured as design - bid - build.

There will not be WBE / MBE set aside requirements

The contractor will be required to pay prevailing wages

The general contractor will have full access to the site at regular hours (7:00 AM to 5:00 PM)

Construction commencement: Unknown

Construction duration: (If implemented as a single, unphased project) - approximately 12 months

Utilities upgrades are limited to the connection of building systems to existing infrastructure

Site improvements are N.I.C.

### INCLUSIONS

This Program/Master Plan Feasibility Cost Plan provides costs for renovation of the existing Postal Exchange and Commissary Buildings at the Presidio of San Francisco. We have included two options for re-use of the buildings. The first is for a museum and the second is for an athletic/recreation facility to include gymnasium and aquatic programmatic functions (Note: for the PX - we included separate cost plans for a gymnasium re-use and an aquatic re-use, as the building is not large enough to house both programs simultaneously).

Included in the Cost Plan are the following elements:

### Demolition:

Interior gut demolition, selective demolition for pass-through(s), demolition associated with code upgrades, and removal and disposal of demolished materials.

### Code Upgrades:

*Seismic:* A combination of new steel braces, required foundations, foundation tie-downs, and floor and wall diaphragm collector reinforcement.

Life Safety: A new fire alarm system, new exiting, and fire sprinkler system modifications to accommodate new layouts within the buildings.

**System Upgrades:** All renovation projects are complete system upgrades to PX systems and supplementation for the Commissary. HVAC upgrades include equipment, distribution, controls, exhaust, and related piping and humidity control. Plumbing upgrades include equipment, and all associated piping, gas distribution and drainage. Electrical upgrades include power, distribution, user conveniance, and lighting, DataCom infrastructure including new conduit and wire.

### Structural Upgrades:

The provision of column free spaces for the Theater and the Gymnasium include a foundation system of column footings, grade beams, tie beams, slab-on-grade, a structural steel frame utilizing wide flange and tube steel, and moment connections. For the Aquatic Center we have provided for a new concrete "pit" for the pools including required demolition, excavation and off haul, pile foundation, and cast in place concrete floors and walls. For the Theater we have provided costs associated with a raised / sloped floor. For the PX Gymnasium option we have provided for a raised roof element including a foundation system of column footings, grade beams, tie beams and slab-on-grade, and a structural steel frame utilizing wide flange and tube steel, and moment connections.

Function equipment includes, built-in casework, lecture hall seating and casework, and other

### INCLUSIONS

**Exterior cladding:** New, punched aluminum windows, accomodating demolition and removal of existing exterior walls, new entrance accommodations, patching and new paint.

**Roofing:** New, flat membrane roofing has been provided for all schemes including the removal of existing materials, new skylights, and accomodating demolition and removal of existing roofing structure.

Interior Fit-Out: Within the body of the Cost Plan, each functional programmatic space has been considered individually. Included are new partitions, doors, interior glazing, floor, wall and ceiling finishes, and Group I equipment. Interior partitions are painted gypsum wall boards. Doors are solid core wood with lights and sidelights. Finishes include stone flooring, bamboo wood floors, carpet, vinyl tile, linoleum, wood acoustical wall panels, ceramic tile and wood paneling to walls, gypsum wall board, ACT, exposed ceilings with track lighting, and fixed / built in casework and equipment. Also included in the costs associated with Interior Fit-Out are HVAC distribution, plumbing fixtures, including locker room showers, electrical lighting, conveniance fixtures with outlets and switches, and datacom outlets.

Note: Please refer to the exclusions section of this report.
## INCLUSIONS

# **BIDDING PROCESS - MARKET CONDITIONS**

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been obtained from historical records and/or discussion with contractors. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated. The mark-ups cover the costs of field overhead, home office overhead and profit and range from 15% to 25% of the cost for a particular item of work.

Pricing reflects probable construction costs obtainable in the project locality on the date of this statement of probable costs. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors and general contractors, with a minimum of 4 bidders for all items of subcontracted work and 6-7 general contractor bids. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since Davis Langdon Adamson has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, the statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents Davis Langdon Adamson's best judgment as professional construction consultant familiar with the construction industry. However, Davis Langdon Adamson cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

## EXCLUSIONS

Furniture, fixtures and equipment (FF&E) including Group II & III equipment.

Utility and utility company charges for any work beyond the boundary of the site.

Telephone/data active equipment (PBX, routers, hubs, desk top units).

Costs associated with hazardous material abatement (Soils, Asbestos, Lead Paint, etc.).

Costs associated with compression of the schedule, premium or shift work, or restrictions on the contractors working hours, except as noted above.

Costs associated with construction noise reduction.

Design and contractor field scope change order contingencies.

Emergency generator .

Parking requirements and replacement parking conditions.

Design, testing, inspection, or construction management fee.

Assessments, taxes, finance, legal or development charges.

Environmental impact mitigation work which may be required.

Builders risk, project wrap-up or other owner provided insurance programs.

Land or easement acquisition and fees.

Costs associated with system commissioning.

Site development beyond the footprint of the buildings.

Pre-fabricated workstations.

Cost escalation beyond July 2001.

Commissary: Museum Re-Use

EX	EXECUTIVE SUMMARY						
		Quantity	Unit	S/SF	S x 1,000		
Coi	nstruction Costs (Direct)						
	Building Renovation						
1.	Interior Gut Demolition	92,722	SF	10.00	927		
2.	Code Upgrades						
2a.	Seismic	92,722	SF	3.50	325		
2b.	Life Safety - Fire Alarm	92,722	SF	2.00	185		
2c.	Life Safety - New Exit(s) at Theater	1	LS	75,000.00	75		
2d.	Sprinkler System (Modify)	92,722	SF	1.50	139		
3.	Structural Modifications						
3a.	Reconfigure Theater - Column Free	14,000	SF	30.00	420		
3b.	Raised / Sloping Floor at Theater	14,000	SF	25.00	350		
3c.	New Openings in CMU Walls	5	EA	5,000.00	25		
3d.	New Ramp at Administration	1	LS	25,000.00	25		
4.	Exterior Envelope						
4a.	New Glazed Openings (incl'g demolition	336	SF	200.00	67		
4b.	Modify Entry	1	LS	75,000.00	75		
4c.	Patch and Paint	1	LS	100,000.00	100		
4d.	New Roofing (incl'g demolition)	92,722	SF	6.50	603		
4e.	New Skylights (incl'g demolition)	432	SF	200.00	86		
5.	System Upgrades - Core						
5a.	HVAC	92,722	SF	8.00	742		
5b.	Humidity Control	1	LS	50,000.00	50		
5c.	Plumbing	92,722	SF	3.00	278		
5d.	Electrical	92,722	SF	6.00	556		
5e.	Datacom	92,722	SF	2.00	185		
5f.	Security	92,722	SF	5.00	464		
6.	Interior Fit Out						
6a.	Galleries - in retail area	18,444	SF	80.00	1,476		
6b.	Galleries - in warehouse area	8,540	SF	70.00	598		
6c.	Theater - Fixed Seating (500 each)	14,000	SF	120.00	1,680		
6d.	Reception	2,500	SF	100.00	250		
6e.	Café	2,500	SF	90.00	225		
6f.	Shop	1,000	SF	100.00	100		
6g.	Education	2,200	SF	70.00	154		
6h.	Administration	7,964	SF	65.00	518		
6i.	Collections Management	10,600	SF	65.00	689		
6j.	Temporary Staging	6,200	SF	65.00	403		
6k.	Coats	644	SF	65.00	42		
61.	Toilet Rooms	1,100	SF	150.00	165		
6m.	Circulation - "Galleries"	23,070	SF	100.00	2,307		
6n.	Circulation - Service / Back of House	2,500	SF	50.00	125		

# Presidio Trust PX and Commissar Re-Use Analysis

Commissary: Museum Re-Use

#### EXECUTIVE SUMMARY

	Quantity	Unit	S/SF	S x 1,000
Subtotal: Construction Costs (Direct)				14,409
General Conditions		8.00%		1,153
Contractors Overhead and Profit or Fee		5.00%		778
Subtotal: Construction Costs (Direct + General Co	ntractor N	larkup)		16,340
Contingency for Design Development		15.00%		2,451
Allowance for Rising Costs (NIC) Recommended: 5% Per Annum to Midpoint of C	onstruction	0.00%		0
RECOMMENDED BUDGET for CONSTRUCTION December 1, 2001	ONLY			18,791
		Cost Pe	er GSF	\$202.66
Project Related Costs (Excluded)				
Land or Easement Acquisition			В	y the Owner
Builder Risk or Other Owner's Furnished Insurance	e		В	y the Owner
Environmental Impact Mitigation Work			B	y the Owner
Assessments, Taxes, Finance, Legal or Developme	ent Charges	5	B	y the Owner
Design, Renting, Inspection and Construction Man	nagement F	ees	B	y the Owner
Owner Related / Contractor Change Order Conting	gency		B	y the Owner
Cost Associated with Compressed Schedule, If Re	quired		B	y the Owner
Utility Connection Fees			B	y the Owner
Cost Associated with Hazardous Materials			B	y the Owner
Telephone Main Switch & User Equipment			B	y the Owner
Furniture, Fixtures and Movable Equipment (Grou	ip II & III)		By	y the Owner
Project Contingency			B	y the Owner
Owner Related Charges			By	y the Owner

# RECOMMENDED BUDGET for PROJECT RELATED COSTS

Unknown at This Time

#### TOTAL RECOMMENDED PROJECT COST

**To Be Determined** 

Note: Cost to remove building from site including utilities under building footprint including off haul and leveling of site: \$1,350,000

EXE	CUTIVE SUMMARY				
		Quantity	Unit	S/SF	S x 1,000
Cons	truction Costs (Direct)				
<u></u>					
1	Sulding Renovation				
1.	Interior Gut Demolition	92,722	SF	10.00	927
2.	Code Upgrades				
2a.	Seismic	92,722	SF	3.50	325
2b.	Life Safety - Fire Alarm	92,722	SF	2.00	185
2c.	Sprinkler System (Modify)	92,722	SF	1.50	139
3.	Structural Modifications				
3a.	Reconfigure Gymnasium - Column Free	17,080	SF	30.00	512
3b.	Reconfigure Aquatics - Column Free	14,100	SF	32.50	458
3c.	Concrete Pool (On Pile Foundation)	13,000	SF	45.00	585
3d.	New Openings in CMU Walls	3	EA	5,000.00	15
4.	Exterior Envelope				
4a.	New Glazed Openings (incl'g demolition)	288	SF	200.00	58
4b.	Modify Entry	1	LS	75,000.00	75
4c.	Patch and Paint	1	LS	100,000.00	100
4d.	New Roofing (incl'g demolition)	92,722	SF	6.50	603
4e.	New Skylights (incl'g demolition)	288	SF	200.00	58
4f.	Convert roll-up doors to windows	480	SF	150.00	72
5.	System Upgrades - Core				
5a.	HVAC	92,722	SF	8.00	742
5b.	Pool Systems	1	LS	150,000.00	150
5c.	Plumbing	92,722	SF	5.00	464
5d.	Electrical	92,722	SF	6.00	556
5e.	Datacom	92,722	SF	1.00	93
5f.	Security	92,722	SF	1.50	139
6.	Interior Fit Out				
6a.	Gymnasium	17,080	SF	80.00	1,366
6b.	Racquetball / Squash	2,944	SF	120.00	353
6c.	Spinning	2,050	SF	60.00	123
6d.	Aerobics	9,860	SF	60.00	592
6e.	Childcare	2,800	SF	100.00	280
6f.	Weights / Stretching / Cardio	11,670	SF	80.00	934
6g.	Administration	2,975	SF	65.00	193
6h.	Men's / Women's Lockers (Incl'g Plumbing	ţ			
	Fixtures, Sauna & Steam Rooms)	7,100	SF	200.00	1,420
6i.	Juice Bar	1,000	SF	120.00	120
6j.	Aquatic Center (Incl'g Pools / Whirlpool	14,100	SF	150.00	2,115
6k.	Circulation	19,063	SF	60.00	1,144
61.	Storage	2,080	SF	50.00	104

Commissary: Recreation Facility Re-Use

EXECUTIVE SUM	MARY
---------------	------

Qui	<i>intity</i>	Unit	S/SF	S x 1,000
Subtotal: A. Construction Costs (Direct)				15,000
General Conditions		8.00%		1.200
Contractors Overhead and Profit or Fee		5.00%		810
Subtotal: A. Construction Costs (Direct + General Contr	ractor	Markup)		17,010
Contingency for Design Development		15.00%		2,552
Allowance for Rising Costs (NIC) Recommended: 5% Per Annum to Midpoint of Constru	uction	0.00%		C
RECOMMENDED BUDGET for CONSTRUCTION ONL December 1, 2001	.Y			19,562
		Cost Pe	r GSF	\$210.97
B. Project Related Costs				
Land or Easement Acquisition			В	y the Owner
Builder Risk or Other Owner's Furnished Insurance			B	y the Owner
Environmental Impact Mitigation Work			B	y the Owner
Assessments, Taxes, Finance, Legal or Development C	harges		B	y the Owner
Design, Renting, Inspection and Construction Managen	nent Fo	ees	B	y the Owner
Owner Related / Contractor Change Order Contingency	/		By	y the Owner
Cost Associated with Compressed Schedule, If Require	d		B	y the Owner
Utility Connection Fees			B	y the Owner
Cost Associated with Hazardous Materials			B	y the Owner
Telephone Main Switch & User Equipment			By	y the Owner
Furniture, Fixtures and Movable Equipment (Group II a	& III)		By	y the Owner
Project Contingency			Ву	y the Owner
Owner Related Charges			Ву	y the Owner
RECOMMENDED BUDGET for PROJECT RELATED C	OSTS	' Un	known at	This Time

**RECOMMENDED BUDGET for PROJECT RELATED COSTS** 

TOTAL RECOMMENDED PROJECT COST

**To Be Determined** 

Note: Cost to remove building from site including utilities under building footprint including off haul and leveling of site: \$1,350,000

Post Exchange: Museum Re-Use

EXECUTIVE SUMMARY

		Quantity	Unit	S/SF	S x 1,000
Cons	truction Costs (Direct)				
I	Building Renovation				
1.	Interior Gut Demolition	49,690	SF	10.00	497
2.	Code Upgrades				
2a.	Seismic	49,690	SF	10.00	497
2b.	Life Safety - Fire Alarm	49,690	SF	2.00	99
2c.	Life Safety - New Exit(s) at Theater	1	LS	40,000.00	40
2d.	Sprinkler System (Modify)	49,690	SF	1.50	75
3.	Structural Modifications				
3a.	Raised / Sloping Floor at Theater	14,000	SF	25.00	350
4.	Exterior Envelope				
4a.	New Glazed Openings (incl'g demolition	500	SF	200.00	100
4b.	Modify Entry	1	LS	75,000.00	75
4c.	Patch and Paint	1	LS	65,000.00	65
4d.	New Roofing (incl'g demolition)	49,690	SF	6.50	323
4e.	Canopy at Loading Dock	920	SF	100.00	92
5.	System Upgrades - Core				
5a.	HVAC	49,690	SF	14.00	696
5b.	Humidity Control	1	LS	35,000.00	35
5c.	Plumbing	49,690	SF	3.00	149
5d.	Electrical	49,690	SF	10.00	497
5e.	Datacom	49,690	SF	2.00	99
5f.	Security	49,690	SF	5.00	248
6.	Interior Fit Out				
6a.	Galleries	11,550	SF	70.00	809
6b.	Theater - Fixed Seating (250 each)	7,200	SF	120.00	864
6c.	Reception	3,500	SF	100.00	350
6d.	Café	2,500	SF	90.00	225
6e.	Shop	1,000	SF	100.00	100
6f.	Education	1,600	SF	70.00	112
6g.	Administration	4,600	SF	65.00	299
6h.	Collections Management	4,300	SF	65.00	280
6i.	Temporary Staging	2,500	SF	65.00	163
6j.	Coats	450	SF	65.00	29
6k.	Toilet Rooms	980	SF	140.00	137
61.	Circulation - "Galleries"	7,760	SF	100.00	776
6m.	Circulation - Service / Back of House	1,750	SF	50.00	88

Subtotal:

8,169

# Presidio Trust PX and Commissar Re-Use Analysis

Post Exchange: Museum Re-Use

## EXECUTIVE SUMMARY

	Quantity	Unit	S/SF	S x 1,000
Subtotal: Construction Costs (Direct)				8,169
General Conditions		8.00%		654
Contractors Overhead and Profit or Fee		5.00%		441
Subtotal: Construction Costs (Direct + General Con	itractor M	arkup)		9,264
Contingency for Design Development		15.00%		1,390
Allowance for Rising Costs (NIC) Recommended: 5% Per Annum to Midpoint of Co	onstruction	0.00%		0
RECOMMENDED BUDGET for CONSTRUCTION December 1, 2001	ONLY			10,654
		Cost Pe	er GSF	S214.41
Project Related Costs (Excluded)				
Land or Easement Acquisition			By	y the Owner
Builder Risk or Other Owner's Furnished Insuranc	e		By	y the Owner
Environmental Impact Mitigation Work			By	y the Owner
Assessments, Taxes, Finance, Legal or Developme	ent Charge:	5	By	y the Owner
Design, Renting, Inspection and Construction Mar	agement F	ees	By	y the Owner
Owner Related / Contractor Change Order Conting	gency		By	the Owner
Cost Associated with Compressed Schedule, If Re-	quired		By	y the Owner
Utility Connection Fees			By	the Owner
Cost Associated with Hazardous Materials			By	the Owner
Telephone Main Switch & User Equipment			By	the Owner
Furniture, Fixtures and Movable Equipment (Grou	p II & III)		By	the Owner
Project Contingency			By	the Owner
Owner Related Charges			Ву	the Owner

**RECOMMENDED BUDGET for PROJECT RELATED COSTS** 

Unknown at This Time

#### TOTAL RECOMMENDED PROJECT COST

**To Be Determined** 

Note: Cost to remove building from site including utilities under building footprint including off haul and leveling of site: \$ 750,000

Post Exchange: Recreation Facility Re-Use (Aquatic Center)

EXE	ECUTIVE SUMMARY				
		Quantity	Unit	S/SF	S x 1,000
<u>Con</u>	struction Costs (Direct)				
	Building Renovation				
1.	Interior Gut Demolition	49,690	SF	10.00	497
2.	Code Upgrades				
2a.	Seismic	49,690	SF	10.00	497
2b.	Life Safety - Fire Alarm	49,690	SF	2.00	99
2c.	Sprinkler System (Modify)	49,690	SF	1.50	75
3.	Structural Modifications				
3a.	Concrete Pool (On Pile Foundation)	13,000	SF	45.00	585
3b.	New Openings in Walls	2	EA	1,500.00	3
4.	Exterior Envelope				
4a.	New Glazed Openings	368	SF	200.00	74
4b.	Modify Entry	1	LS	75,000.00	75
4c.	Patch and Paint	1	LS	65,000.00	65
4d.	New Roofing (incl'g demolition)	49,690	SF	6.50	323
4f.	Convert roll-up doors to windows	160	SF	150.00	24
5.	System Upgrades - Core				
5a.	HVAC	49,690	SF	14.00	696
5b.	Pool Systems	1	LS	150,000.00	150
5c.	Plumbing	49,690	SF	5.00	248
5d.	Electrical	49,690	SF	10.00	497
5e.	Datacom	49,690	SF	1.00	50
5f.	Security	49,690	SF	1.50	75
6.	Interior Fit Out				
6a.	Spinning	1,350	SF	60.00	81
6b.	Aerobics	5,250	SF	60.00	315
6c.	Childcare	1,450	SF	100.00	145
6d.	Weights / Stretching / Cardio	9,338	SF	80.00	747
6e.	Administration	6,800	SF	65.00	442
6f.	Men's / Women's Lockers (Incl'g Plumbing	3			
	Fixtures, Sauna & Steam Rooms)	6,100	SF	200.00	1,220
6g.	Juice Bar	700	SF	120.00	84
6h.	Aquatic Center (Incl'g Pools / Whirlpool)	12,800	SF	150.00	1,920
6i.	Circulation	4,802	SF	60.00	288
6j.	Storage	1,100	SF	50.00	55

Subtotal:

9,330

Post Exchange: Recreation Facility Re-Use (Aquatic Center)

## EXECUTIVE SUMMARY

Quantit	y Unit	S/SF	S x 1,000
Subtotal: A. Construction Costs (Direct)			9,330
General Conditions	8.00%		746
Contractors Overhead and Profit or Fee	5.00%o		504
Subtotal: A. Construction Costs (Direct + General Contract	or Markup)		10,580
Contingency for Design Development	15.00%		1,587
Allowance for Rising Costs (NIC) Recommended: 5% Per Annum to Midpoint of Constructi	0.00% on		0
RECOMMENDED BUDGET for CONSTRUCTION ONLY December 1, 2001			12,167
	Cost Pe	er GSF	\$244.86
<b>B.</b> Project Related Costs			
Land or Easement Acquisition		В	y the Owner
Builder Risk or Other Owner's Furnished Insurance		B	y the Owner
Environmental Impact Mitigation Work		В	y the Owner
Assessments, Taxes, Finance, Legal or Development Charg	ges	B	y the Owner
Design, Renting, Inspection and Construction Managemen	t Fees	B	y the Owner
Owner Related / Contractor Change Order Contingency		B	y the Owner
Cost Associated with Compressed Schedule, If Required		By	y the Owner
Utility Connection Fees		B	y the Owner
Cost Associated with Hazardous Materials		B	y the Owner
Telephone Main Switch & User Equipment		B	y the Owner
Furniture, Fixtures and Movable Equipment (Group II & II	T)	B	y the Owner
Project Contingency		By	y the Owner
Owner Related Charges		By	y the Owner

RECOMMENDED BUDGET for PROJECT RELATED COSTS

Unknown at This Time

TOTAL RECOMMENDED PROJECT COST

**To Be Determined** 

Note: Cost to remove building from site including utilities under building footprint including off haul and leveling of site: \$ 750,000

Post Exchange: Recreation Facility Re-Use (Version II - Gymnasium)

EXI	ECUTIVE SUMMARY				
		Quantity	Unit	S/SF	S x 1,000
Con	struction Costs (Direct)				
	Building Renovation				
ī	Interior Gut Demolition	10 600	СГ.	10.00	107
1.		49,090	31	10.00	497
2.	Code Upgrades	10 (00	OF	10.00	107
2a.	Seismic	49,690	SF	10.00	497
26.	Life Safety - Fire Alarm	49.690	SF	2.00	99
2c.	Sprinkler System (Modify)	49,690	SF	1.50	15
3.	Structural Modifications				
3a.	Raised Roof at Gymnasium	16,000	SF	60.00	960
3b.	New Openings in Walls	2	EA	1,500.00	3
4.	Exterior Envelope				
4a.	New Glazed Openings (incl'g demolition	368	SF	200.00	74
4b.	Modify Entry	1	LS	75,000.00	75
4c.	Patch and Paint	1	LS	65,000.00	65
4d.	New Roofing (incl'g demolition)	49,690	SF	6.50	323
4f.	Convert roll-up doors to windows	160	SF	150.00	24
5.	System Upgrades - Core				
5a.	HVAC	49,690	SF	14.00	696
5b.	Pool Systems	1	LS	50,000.00	50
5c.	Plumbing	49,690	SF	5.00	248
5d.	Electrical	49,690	SF	10.00	497
5e.	Datacom	49,690	SF	1.00	50
5f.	Security	49,690	SF	1.50	75
6.	Interior Fit Out				
6a.	Gymnasium	9,025	SF	80.00	722
6b.	Racquetball / Squash	2,272	SF	120.00	273
6c.	Spinning	1,680	SF	60.00	101
6d.	Aerobics	5,250	SF	60.00	315
6e.	Childcare	1,620	SF	100.00	162
6f.	Weights / Stretching / Cardio	9,600	SF	80.00	768
6g.	Administration	6,800	SF	65.00	442
6h.	Men's / Women's Lockers (Incl'g Plumbing	r			
	Fixtures, Sauna & Steam Rooms)	6.270	SF	200.00	1.254
6i.	Juice Bar	700	SF	120.00	84
6i.	Circulation	5.373	SF	60.00	322
6k.	Storage	1,100	SF	50.00	55

Subtotal:

8,806

Post Exchange: Recreation Facility Re-Use (Version II - Gymnasium)

#### EXECUTIVE SUMMARY

	Quantity	Unit	\$/SF	S x 1,000
Subtotal: A. Construction Costs (Direct)				8,806
General Conditions		8.00%		704
Contractors Overhead and Profit or Fee		5.00%		476
Subtotal: A. Construction Costs (Direct + General C	Contractor	· Markup)		9,986
Contingency for Design Development		15.00%		1,498
Allowance for Rising Costs (NIC) <u>Recommended:</u> 5% Per Annum to Midpoint of Co	onstruction	0.00%		0
RECOMMENDED BUDGET for CONSTRUCTION December 1, 2001	ONLY			11,484
		Cost Per	GSF	\$231.11
B. Project Related Costs				
Land or Easement Acquisition			By	y the Owner
Builder Risk or Other Owner's Furnished Insurance	2		В	y the Owner
Environmental Impact Mitigation Work			By	y the Owner
Assessments, Taxes, Finance, Legal or Developme	nt Charge	S	By	y the Owner
Design, Renting, Inspection and Construction Man	agement F	ees	By	y the Owner
Owner Related / Contractor Change Order Conting	ency		By	the Owner
Cost Associated with Compressed Schedule, If Rec	juired		By	y the Owner
Utility Connection Fees			By	y the Owner
Cost Associated with Hazardous Materials			By	the Owner
Telephone Main Switch & User Equipment			By	the Owner
Furniture, Fixtures and Movable Equipment (Grou	pII & III)		By	the Owner
Project Contingency			By	y the Owner
Owner Related Charges			Ву	the Owner

**RECOMMENDED BUDGET for PROJECT RELATED COSTS** 

Unknown at This Time

TOTAL RECOMMENDED PROJECT COST

**To Be Determined** 

Note: Cost to remove building from site including utilities under building footprint including off haul and leveling of site: \$ 750,000