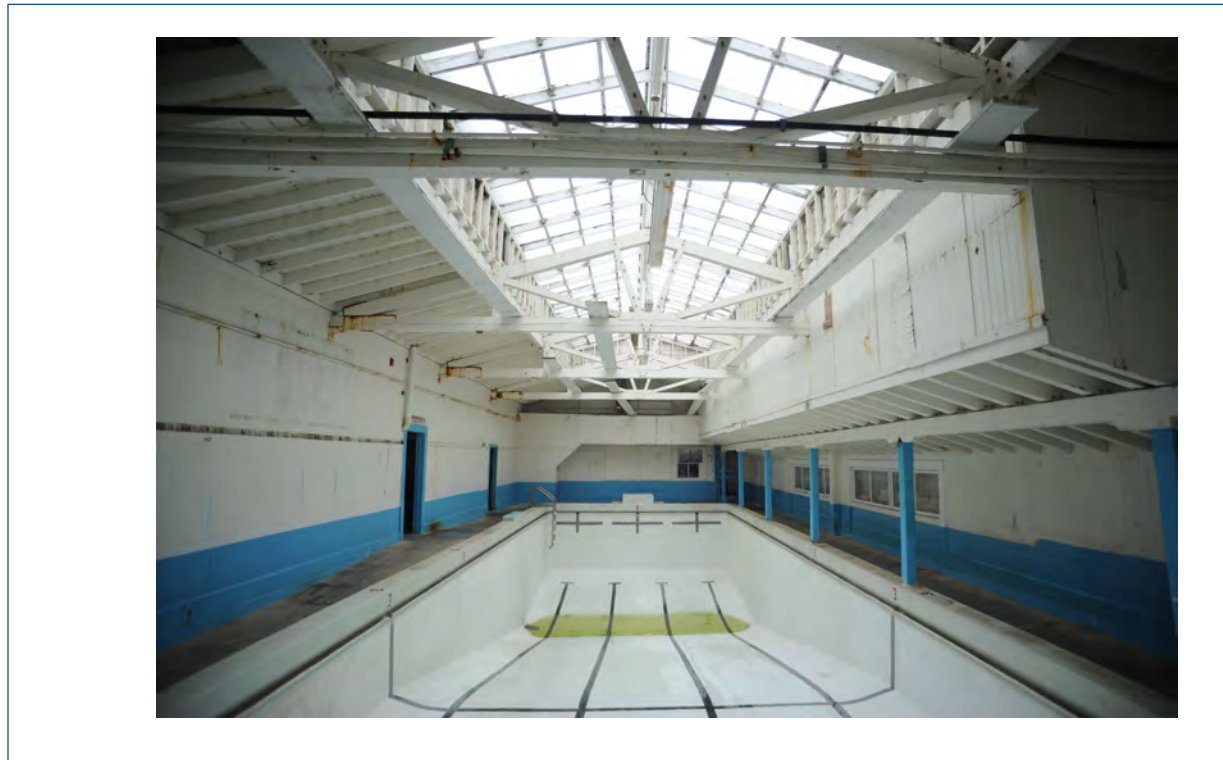


# STRUCTURAL AND USE STUDY OF CITY HALL EAST



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PREPARED for  
**CITY OF FORT BRAGG**

MAY 2010



# ACKNOWLEDGEMENTS



CORNER OF FRANKLIN AND LAUREL STREET



ATRIUM AND WOOD TRUSSES IN POOL BUILDING

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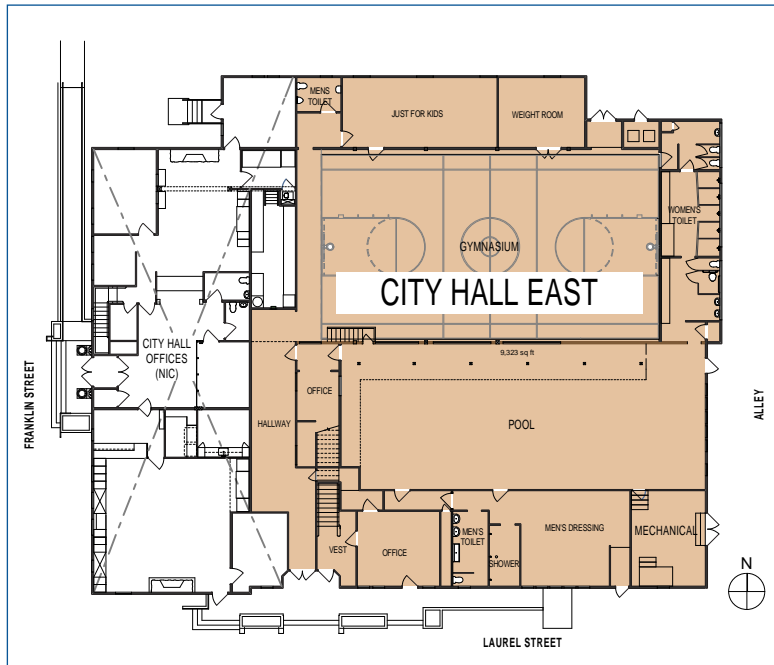
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Note: The historical photos of the old Community Club Building have been provided for use in this study by Silvia E. Bartley on behalf of the Fort Bragg - Mendocino Coast Historic Society.



# 1. EXECUTIVE SUMMARY

A structural evaluation and use study of City Hall East were prepared over the course of 4 months beginning January, 2010 to address significant structural issues which exist in the building and to identify and determine the feasibility of both continued and new uses. The architect and engineer met with City of Fort Bragg personnel, conducted a general tour of the building including limited inspections, gathered other data and prepared drawings. Preliminary layouts, code evaluations, calculations and cost estimations were prepared and recommendations were made for necessary structural and other improvements as appropriate to each use. The project must preserve the historic value of the building as much as possible, as it is a local Historic Landmark for the City of Fort Bragg. The project also must be consistent with the City's Greenhouse Gas (GHG) reduction goals and help implement the emissions reduction measures outlined in its Greenhouse Gas Emissions Inventory study dated 8-15-2007. See further description of specific Sustainability, Energy and GHG goals on page 23.



AREA OF WORK

## STRUCTURAL FINDINGS

Structural findings are described in detail starting on page 7. The largest area of concern is the pool building which, due to years of exposure to a highly-corrosive environment and lack of maintenance has resulted in severe corrosion of steel components. The most critical areas are the catwalk and the pool truss heel connections. Recommendations are to lock and close-off access to the pool area or to provide temporary strengthening to the truss connections and to shore or remove the entire catwalk. In the full rehabilitation scenarios for this area, the pool area would be converted to a compatible use for the space while preserving those portions or features which convey its historical, cultural or architectural character. The trusses would be restored to their original look including replacement of all steel connectors, along with restoration of the glass atrium. The catwalk would be removed to bring the character of the space back to its original design.

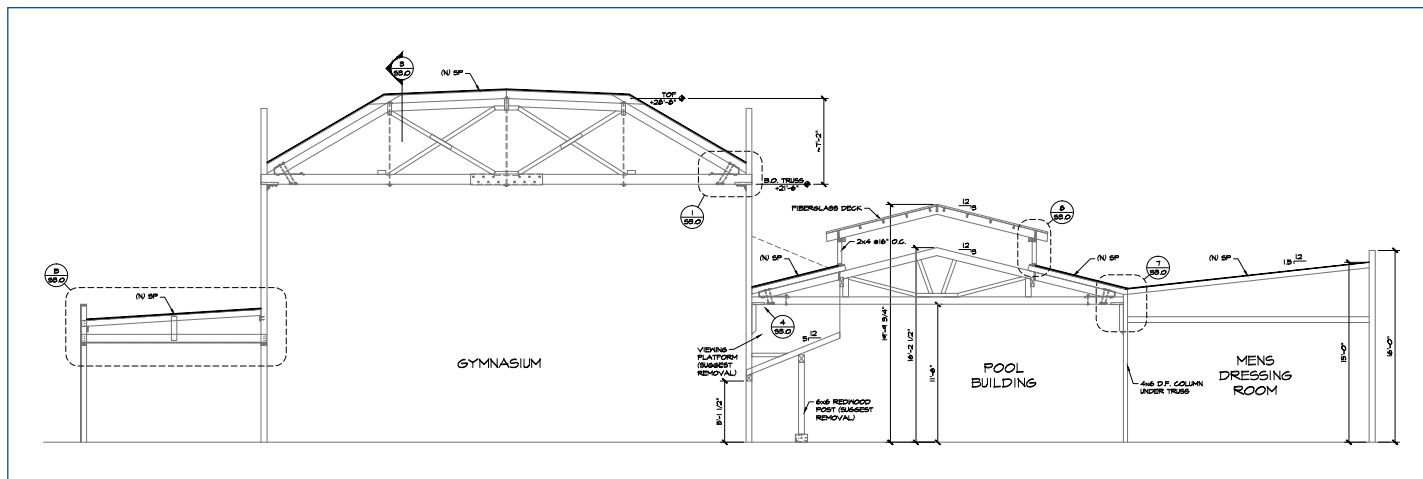
The remaining portions of City Hall East did not present immediate structural concerns; however, in any remodel or upgrade to the building, the lateral resistance of the structure would have to be upgraded to current code. This would involve adding plywood to existing stud walls at key locations, the addition of new strengthening beams where required (see Exhibit B) and adding roof sheathing over the existing inadequate 1x spaced-sheathing at all roof areas. See Exhibit B for Schematic Structural Drawings.

## ALTERNATIVE USE OPTIONS

Three alternative use options were developed for City Hall East. In all options, the proposed uses respect the primary and secondary historic elements of the building. Rehabilitation is the method recommended for City Hall East. Refer to the *Interior's Standards for Rehabilitation of Historic Structures* (Exhibit H). Rehabilitation allows for some flexibility for the new uses which seems the best approach to fit this project. Alternative use options A, B and C are described in detail starting on page 23. Alternative Option A takes a minimum renovation approach and is the least costly option. The gymnasium remains in use as a gymnasium while the pool is filled and abandoned and converted to usable high bay space, keeping the atrium above. Alternative Options B and C take on a higher level of renovation - slightly more cost, same schedule - and bring new, compatible uses to the building. The structural improvements described above are required in each of the three options.

## FEASIBILITY

Depending on the needs of the City and/or community along with funding availability, all three options require similar levels of structural remediation and are feasible with respect to cost (ranging from \$1.9 to \$2.2 million) and schedule (approximately 18 months total project development including design, bidding and construction). Replacement value is between 76 and 81 percent, which is within the normal range for a historic building with full rehabilitation typically ranging from 75 to 100 percent. See Exhibit D for preliminary cost estimates for each use option.



SECTION THROUGH BUILDING

## 2. SCOPE OF STUDY



TRUSS AND ATRIUM IN POOL BUILDING

### SUMMARY

The purpose of this study is to conduct a limited structural evaluation of City Hall East and to identify and evaluate various possible future uses.

First, a general tour and limited inspection of the building was conducted on January 21 followed by a meeting with a committee composed of key City staff. Data, information and prior studies related to the building were collected and various use scenarios were identified. Next, a limited structural evaluation and code review were prepared and coordinated with the local fire marshal and building official. Basic drawings of the building and its structural system were prepared as well as concept drawings of three scenarios showing different uses. Preliminary estimates of likely renovations costs for each scenario were prepared and compared to replacement cost. Opportunities for funding were explored. Each scenario was then evaluated based on likely structural impact, maintenance of historical character, sustainability, projected cost and likely community support.

Secondly, a meeting was held on March 1 with the committee to review a draft report containing these findings and to determine the direction upon which to complete the study. Further comment resulting from a brief review period were then incorporated into the final report which includes preliminary schematic CAD drawings of the building, structural analysis of the existing building, written and graphic definition of the three alternative scenarios, structural analysis of the same, summary matrix of potential funding sources, and a list of additional tests and inspections which may be required.

The final report was then submitted for review and approval by City Council to be used to inform next actions for City Hall East.

# BUILDING 3. DESCRIPTION

## GENERAL

The City of Fort Bragg currently owns an existing 17,930 square foot building at 213 East Laurel Street. The west 2-story portion of the building – City Hall West - is 8,480 square feet in area and is occupied by City offices. The remaining 9,450 square feet high-bay portion of the building to the east – City Hall East – is the focus of this study. City Hall East was formerly leased by the Mendocino Coast Recreation and Parks District who operated the indoor swimming pool and gymnasium. his tenant moved to new facilities in 2009, and consequently the indoor pool was abandoned, although the gymnasium is still in use for other youth programming. See Exhibit A - *Existing Building drawings*.

The building is wood framed, its exterior covered in painted wood siding punctuated by painted wood trimmed windows and trim. Having been recently renovated, the exterior finishes appear to be in good shape. The roof is wood framed with wood trusses spanning the large spaces at gymnasium and pool. The roof is covered by a mineral sheet asphaltic roof covering which is nearing the end of it useful life and in need of replacement. An exception is the single-ply roof on the northern shed to the gymnasium which was installed within the last 2 years.

Major interior spaces include the gymnasium, the indoor pool and the hallway which connects these spaces to the east wall of City Hall West. For more images of other accessory spaces including now-abandoned locker and shower rooms, etc. please refer to Exhibit A.



HIGH ROOF ABOVE GYMNASIUM WITH POOL ATRIUM BELOW



"JUST FOR KIDS" ROOM OFF GYMNASIUM

## 4. STRUCTURAL REVIEW



TRUSS AND GYMNASIUM



POOL TRUSS AND LOW BAY FRAMING

### INTRODUCTION

The City Hall Building located at 416 North Franklin Street in Fort Bragg CA, is a wood framed building, constructed in the early part of the 20th Century. The structure is framed as a two story section on the west end, currently known as City Hall West, and a one story gymnasium and pool enclosure, restrooms and dressing areas to the east, known as City Hall East.

Years of use have caused significant corrosion and deterioration of truss connections over the indoor pool. The rehabilitation alternatives for these connections in particular are considered.

It will come as no surprise to long time residents of Fort Bragg that California's North Coast is one of the most seismically active areas of the United States. About 25% of California's annual release of seismic energy is in this region. The high rate of seismic activity is related to the complex geologic setting resulting in a number of different sources of potentially damaging earthquakes.

This site is located approximately 8 miles east of the Shelter Cove Section of the 1100 mile long San Andreas Fault. This is a very active fault and was the source of the 1906 San Francisco Earthquake that devastated parts of Fort Bragg. The probability of another large earthquake affecting this area in our lifetime is significant.

The structure is not currently listed as a Registered Historic Place in California, but it is considered a Local Historical Landmark for the City of Fort Bragg. There are some noteworthy historical features that are desirable to keep; yet a safe usable space is needed to appreciate the building's significance.

The continued and future use of the City Hall Building, knowing that there are significant structural issues to address, is the paramount basis for this study and report.

## DESCRIPTION OF STRUCTURE

Based on historical photos, this structure appears to be constructed in the early 1920's. The building was designed by W.H. Weeks, a famed Architect of the 20th Century, most notably honored for his schools and Carnegie Libraries in California.

The building is a typical wood framed structure indicative of the era and its location. The roof is sheathed with 1x8 boards placed over 2x rafters at 24 inches on center. In the gym, these rafters span between 4x purlins which in turn span between heavy timber trusses at approximately 15 feet on center. The trusses are supported by wood columns within the wood framed side walls.

The gym building has a raised wood floor of 2x10 floor joists at 16 inches on center spanning between beams spaced at approximately 10 feet apart. The beams are supported by a series of 6x6 posts on isolated footings. The perimeter walls are founded on continuous concrete stem walls and footings that are assumed to be 18" wide.

The pool area has similar roof framing with straight sheathing over 2x rafters that span to purlins located between heavy timber trusses at 15 feet on center. Trusses are supported by wood columns within the framed wall. The floor is a concrete slab on grade that extends into the shower and restroom areas. The southeast corner of the pool building contains the mechanical room which is approximately 30 inches below grade. Foundations are typically stem walls and continuous footings.

The main trusses in both buildings are made of heavy timber with steel connections and are exposed. The Gym truss is similar to a Gambrel Truss with crossed web members instead of single diagonals. The truss and its connections appear to be in good condition.

The pool truss is a classic Howe Truss that has been modified since the original construction. The connections are showing heavy corrosion and deterioration, with the worst exhibited at the heel joints. The condition of the steel plates at the joint are severely deteriorated.



FRAMING ABOVE NORTH WING OF CITY HALL EAST



TRUSS AND ATRIUM AT POOL





HEAVILY CORRODED STEEL ROD SUPPORT HANGERS AT CATWALK



HEAVILY CORRODED POOL TRUSS HEEL CONNECTION

## DISCUSSION AND FINDINGS

Our findings are based on the site visit of January 21st, 2010.

The most immediate concern involves the pool building. Years of a corrosive environment from pool chlorine and lack of proper maintenance has caused significant corrosion and rusting of the steel components. The following areas are the most critical:

- The catwalk at the west end of the building has badly deteriorated steel rod support hangers (see photo, this page). We cannot determine a reliable capacity for these members.
- The pool truss heel connections are also severely deteriorated (see photo, this page). It is assumed that the bolts through the connection have not corroded to the same extent as the exposed steel plate and are providing the strength in this connection but it is not readily apparent.

The unoccupied status of the space lends to the decreased likelihood of injury, however a critical deficiency exists. Our recommendations are as follows:

- Post the pool space with “Do Not Enter”. Lock or close off access to all spaces within the pool building and the catwalk area.  
OR
- Provide temporary strengthening to the truss connections, and shore or remove the entire catwalk, if it is desired to provide limited access by maintenance personnel.

A suggested temporary fix for the truss heel connection is provided as Detail 9/S3.0 in this report. Note that this is only temporary and must also be coupled with limited personnel access.

The remaining portions of the City Hall East building did not present the immediate concerns that were evident in the pool building.

During the site visit, selected portions of the architectural finishes were removed where appropriate to help determine the methods of framing, connections, materials or condition of the framing members. All areas were not viewed; however enough information was gathered to draw the reasonable

conclusions needed to perform the necessary calculations.

The structure was evaluated using two code sources:

- Chapter 8-7 Structural Regulations of the 2007 California Historic Building Code (CHBC)
- 2007 California Building Code (CBC)

The historic nature of this site allows the use of the CHBC. This code relaxes some of the design criteria used in determining the lateral capacities of structural members and systems. The CHBC allows evaluation of a building using 75% of the lateral forces derived using the 1995 Edition of the California Building Code. This is significant when evaluating a structure that has limited flexibility on placement of strengthening measures due to historical constraints. This reduction still provides an adequate level of life safety and allowing a gentler adjustment to the historical features that makes these structures unique.

The CBC represents a more current understanding of building performance. It is the basis of new construction in California and is used to provide a benchmark reference to the analysis.

### Vertical Load Analysis

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The CBC represents a more current understanding of building performance. It is the basis of new construction in California and is used to provide a benchmark reference to the analysis.



HEAVILY CORRODED POOL TRUSS HEEL CONNECTION IN SOUTH WING LOW BAY SPACE



ROOF TRUSS AT GYMNASIUM



FRAMING AT SOUTH WING, LOW BAY SPACE



POOL TRUSS SHOWING FORMER REPAIR WORK

The following members were evaluated as indicated above with the following results:

Member	*Utilization w/current loads	*Utilization with future loads without Photovoltaic Panels	*Utilization with future loads with Photovoltaic Panels	Comments
Gym 2x6 Rafters	73%	82%	90%	
Gym 4x10 Purlins	139%	155%	Requires strengthening	Requires strengthening
Gym Trusses	46%	49%	57%	
Gym Columns	58%	64%	74%	
Office Rafters	69%	74%	82%	
Women's Restroom Rafters	42%	46%	51%	
Pool Rafters	39%	44%	49%	
Pool 4x10 Purlins	106%	132%	Requires strengthening	Requires strengthening
Pool Trusses	57%	52%	61%	
Men's Dressing Room Rafters	120%	108%	116%	May require strengthening

\*Utilization is the calculated stress divided by the Code allowable stress, expressed as a percentage. Acceptable value is less than 100%

The indication that a member has a Utilization of greater than 100% for existing loads does not mean there is an impending or existing failure. Code allowable stresses include a variety of safety factors and the member has been in service for the life of the project and has not failed. The CHBC allows that an existing member without distress and a complete load path is adequate to remain in use by having withstood the test of time, provided loads are not increased. The pool and gym purlins for example have withstood the test of time, so if a remodel or upgrade is not undertaken, the members may remain as they are. However, with added loads due to upgrades, the purlins in the Gym and Pool will require strengthening. The details provided herein show a possible method.

The Men's Dressing Room Rafters are identified as possible strengthening because of the way the roof structure is built. The 2x8 ceiling joists and the 2x6 roof rafters are connected with 1x6 brace members similar to a truss. This is not a true truss and upon full analysis may require some strengthening. Our analysis evaluates the member individually-not as a truss-and subsequently indicates an overstress. A more thorough evaluation of this area when exact loads are determined will be necessary. Based on the test of time, these members appear to be acceptable.

### Lateral Load Analysis

The lateral analysis of a building requires the investigation of the maximum wind and earthquake loads that the building might experience. The CHBC and its reference to the 1995 CBC uses different formulas to determine the design forces for both wind and seismic than does the current CBC. The overall difference in forces is equivalent to approximately 35% higher forces in the CBC for seismic and approximately the same forces for wind.

The current structure in its existing condition does not meet either the CHBC or the CBC code for resisting lateral forces. A strengthened lateral force resisting system is necessary.

The decision of how to increase the lateral resistance of a structure is based on compatibility with the existing structural framing, ease of construction and cost. In this case the wood framing provides the basis to choose plywood shear walls. Other methods such as structural steel braced or moment frames, concrete masonry units as shear walls, or concrete shear walls, would all be



ATRIUM FRAMING, POOL



TRUSS AT WALL, POOL



LOW FRAMING AT SOUTH WING OFF POOL



VIEW FROM ROOF LOOKING SOUTH

acceptable systems, but at this time do not provide the most cost effective solution. Additional framing, demolition and construction trades would be necessary to install these systems. Adding plywood to the existing stud walls in key locations is consistent with the carpenter trades that would already be present for this project.

The following is the result of our lateral analysis:

- The existing roof sheathing is not adequate to transfer the lateral design forces. All of the roof structures will require new plywood installed over the existing 1x straight sheathing.
- Walls that could be used to resist lateral forces are currently sheathed with horizontal or vertical 1x lumber. Horizontal lumber sheathed shear walls are weak and very flexible. These shear walls are suitable only where earthquake shear loads are low and deflection control is not required. Vertical lumber sheathed walls have similar issues. Consequently, structural plywood will be required on selected walls throughout the structure to provide lateral resistance. Neither the CHBC nor the CBC will allow the use of plywood over existing 1x sheathing, so all existing sheathing must be removed prior to installing the plywood. The included drawings indicate recommended locations for additional shear plywood. The actual length and location along a wall will be determined in a more comprehensive analysis, and is not part of the scope of this report.

#### ASSUMPTIONS

Assumptions and explanations used in the analysis are as follows:

1. The roof has demonstrated adequacy to existing loads, i.e. there have not been structural failures.
2. Wood species and grades are assumed to be Douglas Fir No. 1 for all structural members.
  - The allowable stresses for better grade material may be appropriate; however, without a grade and material analysis, this standard grade is used.
3. Current allowable stress values are used for capacity.
  - Allowable stresses have decreased in recent codes, so a wood member may not support as much load using the new code as the same member would have using the original design code. This is not usually a concern

unless loads on a member are increased.

- When an older building is upgraded, or if the loading changes, the members can be subject to newer standards. Allowable stresses have been lowered through the decades as more data became available and more comprehensive testing protocols and evaluation techniques have been developed. The current lower values are more representative of all wood products, both older and new, and subsequently necessary as a benchmark for this project. There is no exception in the CHBC.

4. Foundations have been assumed to be adequate.
5. Photovoltaic panel dead loads are assumed to be 3.5 pounds per square foot. Wind loads on PV panel systems were not evaluated and may change results indicated herein.

## CONCLUSIONS

City Hall East still retains significant portions of history that are important to save for the City of Fort Bragg. Our efforts to retain this history are coupled with the need to provide a safe, building for the future uses of this space. From a Structural Engineering perspective, the elegance of the pool and gym trusses and their connections provide a view to past engineering and is also a component to be preserved.

Generally, the vertical load capacities of most of the structural members in the City Hall East appear to be adequate for a general increase in loads including photovoltaic panels. The purlins in the pool and gym area will require strengthening as indicated in this report. However, several assumptions were made as to the loads and capacities of these members and their apparent ability to support the current loads does not indicate an immediate threat.

The most imminent issue is the significant corrosion and

deterioration of truss connections and the catwalk support members the indoor pool. At the time of this writing, it is not clear what is providing the support for either of these systems. It is important that the catwalk be removed or shored and the truss heel connections be strengthened with a temporary method of strengthening as indicated in this report. It is also highly suggested that very limited access be afforded this space until such remediation measures are completed.

The capacity of the structure to resist earthquake forces does not meet CHBC or CBC requirements. The next seismic event may be large enough to result in significant damage. Fort Bragg is located in a seismically active area and a strong earthquake could occur at any time. It is our strong recommendation that a detailed engineering analysis, beyond the scope of this report, and subsequent installation of adequate lateral resisting elements, as indicated in this report, should be completed as soon as possible. We also advise that the Gymnasium not be occupied until a seismic upgrade analysis and implementation is completed.

## DISCLAIMER

The opinion and recommendations contained in this report are based on the information provided by the client, on the January 2010 field visit performed as part of this project and on the design-check calculations which were performed based on the information gathered. The conclusions are also dependent on the assumptions of framing and loading provided herein. This report does not provide any warranty, either expressed or implied, for any portion of the existing structure.

# 5. HISTORICAL CONSIDERATIONS



CITY HALL 1949



BOYS SWIM TEAM

## SUMMARY

Designed by noted San Francisco architect William H. Weeks, the building was constructed in 1922 as the Community Club. Historical construction photos indicate the entire building was built at that time, including both the two-story westerly portion now used for City offices and the one-story easterly portion which until recently was in use by the Mendocino Coast Recreation and Parks District. For the purposes of this study, these are referred to as City Hall West and City Hall East, respectively. According to historical records, the cost of the building was \$75,000, paid for largely by the Union Lumber Company and by subscription drives for membership.

In its early years of operation, programming at the Community Club was supported by the YMCA and provided physical education facilities for the youth of Fort Bragg by way of lease monies paid by the school district. The gymnasium was a multi-functional space for the community serving not only the sporting needs of the community but also as a community gathering space for important visitors and speakers as well as for Christmas time events and the like. Aside from the gymnasium, a unique and popular feature was the indoor swimming pool which was initially filled with filtered and heated saltwater pumped from the ocean via the Union Lumber Company mill site. Over time, the pool became the place that Fort Bragg's youth learned to swim and local swimmers prepared for open water ocean marathons. The pool is covered by a handsome atrium which itself is a period piece from that era.

By the mid-1970s, the western portion of the building was in use as the City's administrative offices and Council Chambers, and the eastern portion was used by the Mendocino Coast Recreation and Parks District who operated the swimming pool, gymnasium and provided many recreational programs for local residents. In 1992, the Council Chambers was moved to Town Hall at Laurel and Main, and a remodel project was undertaken to remodel City Hall, including a refurbishment of the exterior finishes. In 2009 City Hall West was again remodeled for the continued and changing needs for City office space. Also in 2009, the Mendocino

Coast Recreation and Parks District moved into the new C. V. Starr Community Center and the indoor pool was abandoned. The gymnasium, however, remained in use for youth league basketball and indoor soccer and there appears to be continued demand for this use in the future. Some further minor changes to the basic structure have likely been made over the years but these are not discernible at this time.

### BUILDING USES

The uses of this building have made important contributions to the cultural history of Fort Bragg and when taken together with its design provenance as a William H. Weeks building make this a building of local historical significance. As such, it has been placed on the City of Fort Bragg's list of historic places and modifications to City Hall East should be treated differently than if it were a non-historic building. The *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Exhibit H) and the *California Historic Building Code* should be used in the evaluation, design and reuse of the building. In the *Secretary of the Interior's Standards for Rehabilitation* there are ten common sense principles to be followed when planning rehabilitation work on a historic building. By emphasizing repair over replacement and accommodating reasonable change for new uses, the Standards seek to ensure the preservation of those qualities which make a property of historic value.

### TREATMENT OF HISTORIC BUILDINGS

Of the four methods of treatment for historic buildings - preservation, rehabilitation, restoration and reconstruction - City Hall East appears to be best suited for rehabilitation. Given the fact that it would be impractical for the City to keep the swimming pool in use since the community has just opened a new one, other uses must be found for the building in order for it to remain in service. Rehabilitation makes possible a compatible use for a property through repair, alterations and additions while preserving those portions or features which convey it's historical, cultural or architectural values.



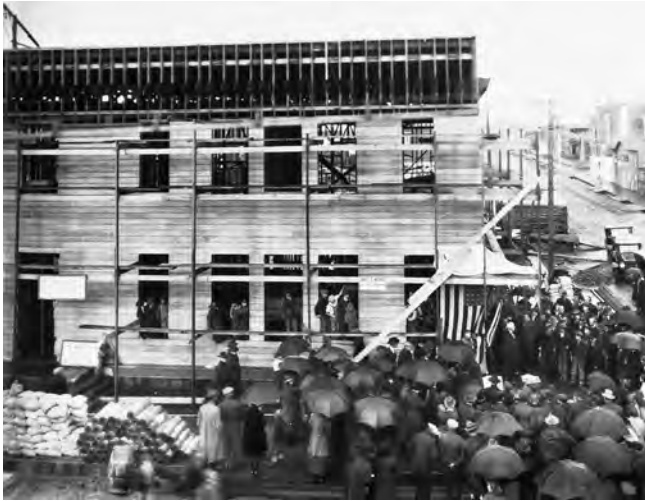
POOL DIVERS AND SWIMMERS



POOL INTERIOR



# HISTORICAL CONSIDERATIONS



DEDICATION - 1922



VIEW FROM FRANKLIN - BUILDING UNDER CONSTRUCTION

New uses, remodel or structural retrofit of the building should take into account the primary and secondary historic elements of City Hall East. Primary elements are those which are essential in conveying the historic and architectural character of a building and are often associated with the primary historic use. In this case, the primary elements would probably include the indoor pool space, the building exterior generally, and optionally the gymnasium. Since it is no longer feasible to keep the pool in use, it would be considered acceptable to remove it, but the other character defining elements of the pool space should be restored, including restoration of the glass atrium. The two mezzanine platforms which appear to have been inserted and are not part of the original design should be removed at the north and west ends. The building exterior should be maintained with a minimum of change for any new uses, and the rooftop thermal solar panels which are visible from the street should be removed and reused elsewhere in City facilities.

Secondary elements are less critical in defining a building's importance within its period of historic significance but which still help define its significance and character. Secondary elements might include the gymnasium (if not considered a primary element), and other parts of the building which remain from the original construction and have not been modified. As such, maintaining the original gymnasium use is preferred and as with the pool, it would be desirable, to bring back the original look of this space including, for example, restoring the existing windows which have been covered. Further investigation and possibly a historic structure report (HSR) would be useful in identifying the extent of these secondary elements.

## PROJECT REVIEW

Historical considerations for project review vary depending on funding source. Where no State or Federal funding is involved, the project would come under local review only for CEQA and planning approval and building permit. Local historic ordinances, if any, would come into play. If the local lead agency (City) certifies that the project has been designed in accordance with

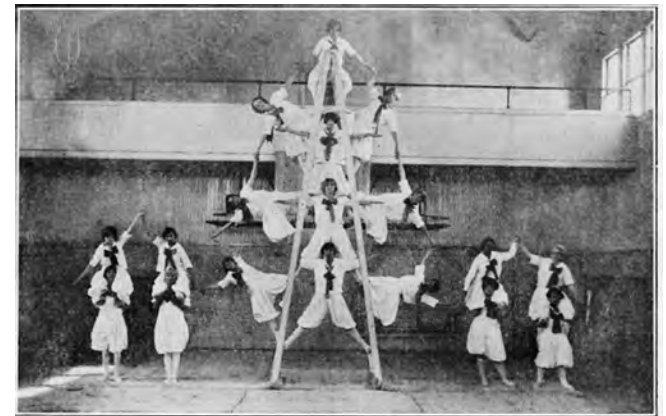
the Secretary of the Interior's Standards for the Treatment of Historic Properties, then the project qualifies for categorical exemption and there would be no CEQA review required (14 CCR Section 15331). If Federal funding is involved, then a Section 106 review would need to be conducted involving the State Historic Preservation Office (SHPO) to ensure compliance with the National Historic Preservation Act (NHPA). Compliance with the National Environmental Policy Act (NEPA) may also be required. While these requirements do add some time, documentation and administration to project development, the simple fact is that the process seeks only to confirm compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (see Exhibit H) and there is often no difference to the design or built result compared to the foregoing.



GYMNASIUM



GYMNASIUM DURING CIRCUS EVENT



CIRCUS GYMNASTS - 1925 IN GYMNASIUM

## 6. CODE CONSIDERATIONS



HALLWAY BETWEEN RECREATION CENTER AND CITY HALL

City Hall East is part of the larger City Hall building at 213 East Laurel Street. As such, analysis of City Hall East which is the scope of this study, required assessment of the whole. The building was first evaluated with respect to existing or recent use by applying the provisions of the regular California Building Code (CBC 2007) for occupancy and use, exiting, minimum plumbing facilities and accessibility. Then, since the building is a qualified historic building, the California Historic Building Code (CHBC 2007) was applied and the results of this review examined. A full code analysis is provided in the appendices which expands on the summary below and assumes that the entire building will be fully automatic fire-sprinklered as required by City ordinance. City Hall West was sprinklered as part of the 2009 remodel and it has been reported that sufficient flow has been provided in the service riser to serve City Hall East.

### OCCUPANCY & SEPARATIONS

In summary, the building is mixed use occupancy with the City Hall offices as B (offices) and the recreation center portion as “A” (assembly). Under the new use scenarios the City Hall offices would remain and the recreation center would most likely stay under an assembly occupancy in the various use options being explored. The impact of the new use scenarios are addressed under each alternative section. Separation of occupancies can be figured and works under both the non separated occupancy method (which would eliminate the need for any 1-hour fire barrier between the B and A, but limit the allowable square footage) or by using the separated occupancy method which would require a 1-hour fire barrier between the B and A. It appears that the 1-hour construction is in place; however, the continuity of this barrier would have to be verified and confirmed. The allowable area, assuming the building is provided with an automatic fire sprinkler system, is as follows:

#### Non Separated Occupancy Method:

Allowable: 19,500 sf

Actual: 17,930 sf

17,930 < 19,500 OK



FIRE SPRINKLER RISER SERVING CITY HALL EAST

**Separated Occupancy Method:**

Allowable B: 29,250 sf

Allowable A: 54,750 sf

Actual B: 8,480 sf

Actual A: 17,930 sf

8,480 < 29,250 OK

17,930 < 54,750 OK

The non-separated occupancy does not rely on maintaining a 1-hour occupancy separation between City Hall West and East but would limit any possible additions to the building to about 1,500 sf. The separated occupancy method requires the existing 1-hour occupancy separation between City Hall West and East to remain and would allow future expansion of up to 36,000 sf. In any case, the building now figures for area and construction type with the CHBC 2007 allowing omission of any occupancy separation walls when fully fire-sprinklered.

**EGRESS**

Adequate means of egress throughout the building appears to be in place. Distance between exits is adequate and exit widths are also large enough to accommodate occupancy loads. There would have to be some modifications made to provide accessible exits out of the building for any renovation. A handicap lift normally would be required to connect the 2nd floor City Hall offices to the 1st floor but an exception may be possible due to the nature of the existing building and that the building is a qualified Historic building.

**MINIMUM PLUMBING**

The required minimum plumbing fixtures were analyzed based on the California Plumbing code. In the City Hall portion of the building fixtures are adequately provided with the exception of a 2nd floor unisex toilet. The City is looking at adding a 2nd floor rest room as part of the next renovation. For the gymnasium and pool facilities, fixtures are close to being met. However, depending on the new use alternative, more may be required.



PLYWOOD RAMP TO REAR ENTRY OF GYMNASIUM



SHOWER/RESTROOM FACILITIES OFF GYMNASIUM

# 7. HAZARDOUS MATERIALS



SOUTH ELEVATION AT LAUREL STREET

## SUMMARY

A hazardous materials survey was prepared for the City of Fort Bragg in June of 2008 and included City Hall West portion of the building. Asbestos and lead based paints were found in the City Hall West portion of the building (PCB's were not part of the survey) and were remediated during the 2009 renovation project.

A hazardous materials survey should be completed on City Hall East prior to work beginning and to fully assess the cost impact of abatement or containment around any of the new use scenarios. At this point, a cost allowance for abatement has been provided in the cost estimations as a place holder until a study is completed.



VIEW FROM FRANKLIN STREET TO NORTH ELEVATION