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Long-Term Recovery of Historic Buildings

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This paper explores the long-term earthquake recovery of historic buildings. The inquiry examines the dynamics of recovery from the 1989 Loma Prieta earthquake for three NGO and public buildings, and identifies the variables that influenced it. The investigation indicates that long-term earthquake recovery for historic buildings is challenging, dynamic, and can be improved. There are several variables that influence the complexity of the recovery but, complications in earthquake recovery can be reduced through pre-incident recovery planning. The inquiry also illustrates that recovery dynamics are varied, and the challenges are dissimilar for different buildings. Several variables influence historic buildings' recovery and are shaped by the bureaucratic recovery processes, involved players, context of recovery, and the building itself.

Key words: Disaster recovery, historic preservation, Loma Prieta earthquake

Introduction

Previous research has investigated the various impacts of disasters (e.g., Lindell and Prater 2003), but the impacts of disasters on historic resources have only been briefly examined (Look and Spennemann 2000; Look and Spennemann 2001; Nelson 1991; NRC 1994; Schwab et al. 1998). While this research has indicated that historic buildings face recovery challenges (Alexander 1989; Lindell and Al-Nammari 2006; Spennemann and Look 1998; Wilson 1991), no study has systematically tackled the long-term recovery for historic buildings. To achieve sustainable recovery, it is important to consider cultural resources, including historic buildings (NHRAIC 2001). And since recovery planning is a recommended preparedness effort (Lindell, Prater, and Perry 2006; Schwab et al. 1998), it should be informed through systematic research, which is lacking.

Therefore, the objective of this paper is to investigate the dynamics of long-term recovery of historic buildings and the variables influencing it. As such, it is a means for improving our understanding of the disaster recovery of such buildings, so that the results of the study would help in improving the sustainability of recovery efforts.

Method

Since this paper investigates the dynamics and variables of recovery, the use of case studies was appropriate. Case studies are intended to allow for collection of detailed information that will build a better understanding of a situation or an event that has not been investigated before. They are chosen to identify what is common to all cases, what is particular to each case, or what is similar or different to others (Creswell 1994). Therefore, this inquiry investigates three buildings in San Francisco damaged by the Loma Prieta earthquake. The M 6.9 earthquake struck on October 17, 1989 at 5:04 p.m. leaving 62 people killed, 3757 injured, and \$5-7 billion in direct costs (Nigg 1991).

Early investigations indicated that the cost for damaged public historic buildings was large, since about one per cent of the historic buildings in the Bay area were damaged, and about 11.25 percent of the total damage was in historic buildings, amounting to \$350 million (ARG 1990). Several studies pointed out to the earthquake's effects on historic buildings (Fratessa 1994; Kariotis, Krakower, and Roselund 1991; Lew 1990; Merritt 1990). Moreover, recent investigations indicate that cost and time to recovery for historic buildings in San Francisco were larger than cost and time to recovery for non-historic buildings (Al-Nammari and Lindell forthcoming). Therefore, it is important to investigate the dynamics of recovery for historic buildings, and the variables that influenced it.

However, since the earthquake took place in 1989, this investigation was confronted by a shortage of data. A limited number of files on damaged historic buildings from the Loma Prieta were available at the office of State Historic Preservation Officer (SHPO), so three projects were selected to represent different times of recovery, diverse owners, and varying uses. It is particularly noteworthy that information on privately-owned buildings was not available. Thus, the cases represent buildings that are owned by non-government organizations or public agencies. Consequently, this inquiry used three principal sources of data. The first data source comprised records and documents available from SHPO. These documents helped in providing a detailed view of the project's development, the problems, and the solutions. These records are diverse; they include letters, agreements, memorandums, minutes of meetings, documentations of public hearings, and professional reports. These documents are varied, so they provided diverse perspectives on the process. The second data source consisted of newspaper clips covering the period 1989 to 2006, which provided another perspective on the recovery process. The third, supplementary source of data, was a set of short semi-structured interviews with individuals involved in the case studies. These interviews helped clarify some issues. Later, some of these individuals reviewed the narrative and analysis.

Data were analyzed using three matrixes. The first two were project based: a chronological matrix and a variable matrix. The third was a comparative matrix of the three projects. The creation of these matrixes involved categorical, descriptive, and analytic coding (Miles and Huberman 1994; Richards 2005). The first matrix contained

time ordered descriptive information of the documents to show the progress of each project. The second matrix was analytical; it identified the variables that influenced each project and was developed as the coding progressed. Finally, the third matrix contained a comparison of the identified variables for the three projects. As the lists of variables were being compiled, they were being grouped, and thus the general categories emerged.

Dynamics of Recovery

The cases below reveal how the dynamics of the long term recovery process for historic buildings are distinctive for each case. A thread connecting the cases is the FEMA process (see Figure 1), but each case faced special challenges. The investigation reveals that an initial confusion usually existed over eligibility and the application process. The early stages are tinted with confusion but procedural complications were not major handicaps most of the time. On the other hand, some delays were significant and resulted from innate value differences among stakeholders that led to long term conflicts. The investigation of the cases below indicates that recovery requires preparedness associated with flexibility and vision, and it is influenced by several variables.

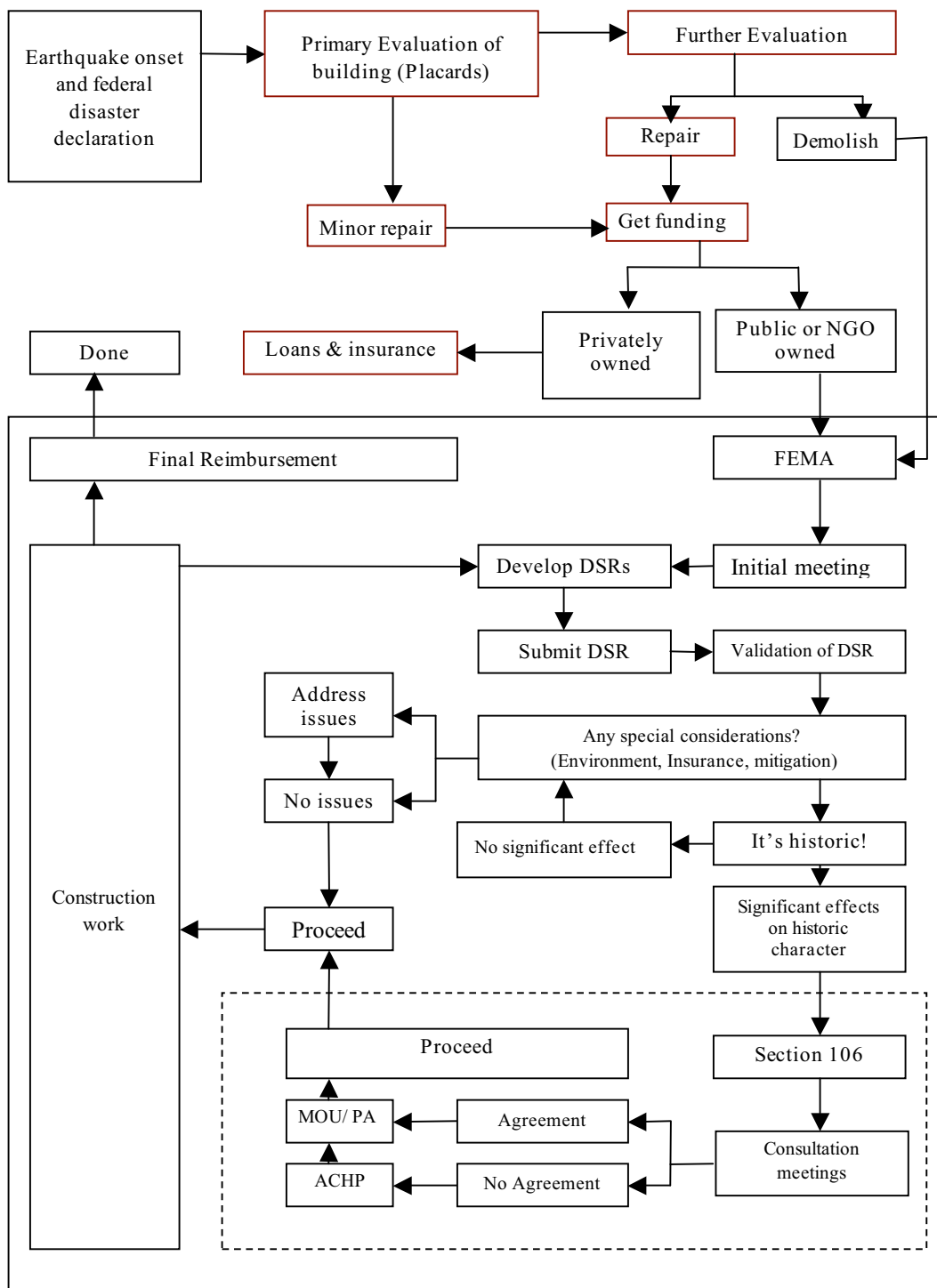
Case I: The Williams Building

The Williams Building, dating to 1907, occupies an important corner at the intersection of Mission and 3rd Streets in downtown San Francisco. At the time of the earthquake, the building was almost vacant and poorly maintained. The surrounding area was part of a redevelopment project and the neglected building was part of a problem prior to the earthquake. An eight story building of 50,000 square foot area, the Williams buildings is considered significant because of its contribution to the urban downtown space and its distinguished brick façade treatment. It is one of the buildings dating to the aftermath of the 1906 earthquake and fire. The Loma Prieta earthquake left several cracks in the building, and some major cracks in the eastern faced gave it a red-tag status.

The owner, the San Francisco Redevelopment Agency (SFRA), initially decided to demolish but, due to the FEMA funding application, a review of the scope of work was completed and the building was determined to be eligible for listing on the National Register of Historic Places. This triggered Section 106 of the National Environmental Protection Act (NEPA), initiating consultation with the SHPO and interested public (ACHP 2002). Since the building could be repaired, demolition was not acceptable. This led to an investigation of feasible alternatives but SFRA estimated that a developer would not be found for a few years. Thus, the future plans for the building were not clear.

SFRA proposed a scheme for temporary shoring, but they avoided any permanent treatment because they assumed that a developer would make permanent repairs. However, there were different perspectives on the seismic strength of the building, which initiated a lengthy discussion between professionals representing SHPO and SFRA.

Figure 1: Simplified FEMA Application Process For a Typical Disaster Recovery Project



FEMA estimated a total cost of about \$27,000 to repair the cracks while SFRA

planned a temporary strengthening at a cost of \$1.128 million. This temporary million dollar scheme was not initially acceptable to FEMA. However, the full seismic upgrade of the building would cost \$6.8 million, so SFRA considered the temporary strengthening to be a viable solution. The available letters reveal discussions about the cost of strengthening and the effects of the temporary shoring on the historic character of the building. The Section 106 consultation included the SHPO, San Francisco Landmarks Advisory Board (LAB), the Foundation of San Francisco's Architectural Heritage (Heritage), FEMA, and the Advisory Council on Historic Preservation (ACHP).

In 1993, four years after the earthquake, SFRA decided to demolish, as they had originally planned. According to SFRA, the building was considered a public threat and no solution had been found for repairing it. This decision complicated the process as the demolition intention was not communicated to the parties involved in the ongoing Section 106 review. Although SHPO withdrew from the consultation, FEMA would not provide the funds for the demolition because the building is historic and Section 106 consultation was not completed yet. As a way out of the impasse, FEMA suggested that SFRA apply to the Hazard Mitigation Fund to cover the costs of the strengthening.

In their new application for FEMA funding, SFRA chose Alternate Project status. As such, the funding approved for repairing and strengthening of the building would be given to SFRA, who would use part of the funding to provide temporary bracing for the Williams Building and use the rest for other projects. The later included the California Historic Society Project, the Jewish Museum Project, and The Japanese American Religious Federation Assisted Living Facility. All of these projects were also subject to the Section 106 review separately. However, the Williams Building remained shored, vacant, and un-repaired. In a publication by the General Accounting Office (1996), the building was mentioned as an example for buildings that should not have received funding, as it was almost empty at the time of the earthquake.

The intent to demolish the building arose again in 1998 when a developer was found for the empty lot adjacent to the building. However, after some deliberation and study, the developer managed to incorporate the building into their proposed plans (Gordon 1999; Webcor Builders n.d.). The final project included adaptive reuse of the Williams Building and a new tower of up to 430 feet in height containing approximately 410 hotel rooms, 95 residential units, a museum/cultural center, and parking (San Francisco Government 1999). The funding process was completed in 2001 when the "Alternate Project" was approved. The construction was done in 2006.

Case II: The SFUSD Administration Building,

The San Francisco Unified School District (SFUSD) Administration Building is a complex composed of four buildings occupying a block on the edge of Civic Center Historic District. The block has two parts: 170 Fell St. and 135 Van Ness Ave. The 170 Fell St. building was constructed in 1910 in what is now known as the Civic Center but

was later moved to its current location in 1913. This move was an important engineering achievement of the time. On the other hand, the 135 Van Ness Ave. building was built 1923-1926 as the High School of Commerce. It was built to complete the block where the 170 Fell St. building was placed. This created a group of loosely connected buildings that represent the educational architecture of that period. At the time of the earthquake, the complex was used as offices for SFUSD (ARG 1993; ARG 1994; Foster Engineering 1990). According to SHPO and FEMA letters and memorandums, both buildings are collectively listed as San Francisco City Landmark #140, and both are eligible for the National Register. However, some documents only refer to 135 Van Ness Ave. as significant, which produced disagreement after the earthquake.

The damages in the complex were varied. The 170 Fell St. building was red-tagged due to extensive damage inside and outside. However, the earthquake damage on 135 Van Ness Ave. building was minor, and there was some major damage in the Gymnasium wing (Foster Engineering 1990). After the earthquake, SFUSD moved its offices out of both buildings but, in 1990, FEMA covered the cost of SFUSD's move back to 135 Van Ness Ave. In addition, FEMA approved the cost for debris removal and emergency protective measures for both buildings. On the other hand, the future of 170 Fell St. was contested and remained unresolved.

The recovery process for the complex progressed through two main stages. In the first stage, SFUSD planned to maintain the use of the buildings as offices through proper restoration according to historic preservation standards. In the second stage, SFUSD decided to use the buildings as the School of the Arts.

During the first stage, reports showed it was feasibility to repair and upgrade 170 Fell St. as offices (Foster Engineering May, 1990). The initial Damage Survey Report (DSR) was approved by FEMA and the SHPO, with preconditions for the use of State Historic Building Code and the Secretary of Interior Standards for the Rehabilitation of Historic Buildings. However, FEMA regulations stipulate that if the repair cost for a building is 50% of its replacement cost, then replacement cost is what FEMA would grant. Therefore, since the estimated cost of the suggested repair work was expected to exceed 50% of the cost of replacing the 170 Fell St. building, FEMA declared that they would fund its replacement only. However, SHPO would not approve demolition because the buildings could be repaired. This initiated a search for a viable future use for the building, which was not resolved even after the cost estimates changed along with FEMA's stance.

Also, SFUSD believed that 170 Fell St. and the Auditorium buildings needed upgrading to meet code in many aspects, but FEMA considered such upgrades ineligible. SFUSD later pointed out that large sums of money were put into studies for rehabilitation as offices, which became useless when SFUSD changed its plans for the buildings. This indicates how the lack of early plans can generate unnecessary expenses and delays.

To resolve the situation, SFUSD requested an "Alternate Project" status in late 1991. As such, they could utilize the repair money for the construction of two elementary

schools at a total of \$14+ million. In response to that request, FEMA informed SFUSD that the 170 Fell St. building was eligible for the National Register and thus subject to Section 106 review. The new cost estimates showed that the cost of replacement was greater than previous estimates. Therefore, FEMA would not pay for demolition or replacement, but only for repair. To create further impediments, the position of Facilities Director in SFUSD was vacant for a year, and then occupied only briefly (1992-1993). Consequently, SFUSD requested time extensions to 1994.

In 1995, FEMA approved the SFUSD cost estimates of \$9+ million, which included repairs, hazardous material abatement, and seismic upgrade to Section 104(f) of the City code, in addition to upgrades to other codes (i.e. life safety and handicap access). However, SFUSD had a change in plans for the buildings. It is not clear when SFUSD decided to use the complex at 135 Van Ness and 170 Fell St. for the School of the Arts (SOTA), but the designs were underway in 1995 and in 1998 a public hearing by SFUSD gained support for moving SOTA from its existing location to the historic complex. It is clear that early in the project, SFUSD leadership and consultants assumed that they could demolish 170 Fell St. building. The correspondence and meeting minutes show that SFUSD worked alone on the project, did not discuss their plans with the SHPO, and considered the consultation required by Section 106 a mere administrative formality.

According to SFUSD, the architects started working on the project in March 1995, and by June 1995 they believed that the SOTA program, as envisioned by SFUSD leadership, would not fit into the spaces of the existing buildings. However, historic preservationists argued that this finding is a consequence of a program that was initially developed on the assumption that there would be a new building within the complex. In July 1995, SFUSD officially notified the State Office of Emergency Services (OES) of their intent to demolish 170 Fell St. building and applied for classification as an Alternate Project. Shortly after, the Board of SFUSD passed a resolution to demolish 170 Fell St. building, and by the end of 1995, a state bond provided SFUSD with more funding for SOTA. Based on the letters and minutes, it seems to have been the administrative culture of SFUSD to make decisions alone. They later stated that they needed approval only from the State Architect, not from the City. SFUSD justified the demolition decision by proposing that they wanted the school design to be program driven, not forced into an existing space.

Funding for SOTA seemed to be a concern. Meeting minutes for SFUSD's consultants indicate they were taking into account that FEMA funding regulations had changed after the 1994 Northridge earthquake, which would reduce the amount of the expected grant. Thus, the new bond money was estimated to support the proposed project. SFUSD's confidence in their demolition decision is further indicated by their decision to authorize the architect to proceed with a design for a new building at 170 Fell St. before there were any approvals for such a project by FEMA or SHPO. The SHPO sent a letter to SFUSD reminding them that there were historically significant buildings

under their stewardship but this letter does not seem to have affected SFUSD's plans. Moreover, although SFUSD's historic preservation consultant stressed the significance of 170 Fell St. building (ARG 1994), SFUSD insisted that it was not historically significant (SFUSD 2000). During this time, the building at 170 Fell St. was occupied by protesters supporting housing for the homeless in September 1995 who sought to draw attention to the availability of space for solving the housing problem. This happened again in 2001 despite the unrepaired building damage and lack of maintenance after the earthquake.

SFUSD formally submitted its SOTA proposal to FEMA in November 1996, and the Section 106 process formally started with the Advisory Council on Historic Preservation (ACHP), San Francisco Landmarks Preservation Advisory Board (LPAB), OES, FEMA, SHPO, and Heritage, in addition to interested individuals. The meetings included many deliberations on the options available to save the buildings. Nonetheless, it was soon obvious that the solutions being presented by the attending professionals were being ignored by SFUSD, which had a strong conviction that SOTA would be unsuccessful if the 170 Fell St. building was reused. Consultation reached a dead end by the end of 1996.

During the consultation process, in December 1996, the San Francisco Mayor tried to intervene. A memo in the SHPO's office (December 16, 1996) documents a phone call from the Mayor's office stating that the Mayor wants the SOTA project to happen and "*historic preservationists should not stop it*". Apparently, the Mayor's office was not aware of the Section 106 requirement of the federal law.

An Environmental Impact Report (EIR) was required under the California Environmental Quality Act (CEQA) (The National Environmental Protection Act also requires an environmental review once a specific proposal was submitted to FEMA for funding). Therefore, SFUSD instructed the architect to investigate alternatives for demolition of the 170 Fell St. building, as required by EIR. By the end of 1997, the draft EIR was published for public comment (SFUSD 1997). It suggested 1998 as the year to start demolition and construction work, to be finished in 2000 with a budget of \$46 million. It identified funding sources as FEMA (for the amount of \$14 million), in addition to bond issues for \$32 million. However, the planning and architectural aspects of the report were strongly criticized in the public meetings and the cost estimates were challenged as exaggerated (SFUSD 2000).

In April 1997, FEMA approved the project pending completion of environmental and historic reviews. The initial total estimated cost of SOTA was \$40 M, anticipating \$10 million from FEMA for 170 Fell St. (for demolition and replacement of the building), \$2+ million from FEMA for 135 Van Ness Ave. repair, and \$24-27 million from school bonds approved by voters in 1994-1996. FEMA approved the DSR cost estimates and established a 75% FEMA funding cap, as stipulated for Alternate Project status. However, it was clear that the Section 106 consultation process was stalled so, in 1998, FEMA advised SFUSD to submit another request for a Revised Improved Project. As such, SFUSD can obtain FEMA funds, utilize them to buy and relocate to a new office

building, and earmark the money originally allocated to relocate SFUSD staff for SOTA project. FEMA approved \$15+ million for this project in a letter dated Sept. 27, 1999 but the Section 106 consultation had yet to be finished.

During that time, a new elected board came to SFUSD and the approach to the project completely changed. SFUSD provided presentations in public hearings before the San Francisco Landmarks Preservation Advisory Board, asserting that the 170 Fell St. building would be mothballed awaiting funds to fully rehabilitate it, and assuring that they would not demolish 170 Fell St. as long as it could be “feasibly” repaired. As a result of the consultation, a Programmatic Agreement was signed in January 2000 and allowed SFUSD two years to develop a plan and provide public presentations on their intentions regarding the complex’s future. However, SFUSD did not follow through on this commitment, and 170 Fells St. building was left to deteriorate to the point at which repairs were no longer feasible.

In 2001, after an inquiry by the SHPO, FEMA started a follow up on the project leading SFUSD to initiate the required procedures. Mothballing was not performed until November 2002. FEMA pushed SFUSD to implement mothballing and the public presentations, but they took until 2003 to complete these actions. An important informational presentation before Landmarks Preservation Advisory Board (LPAB December 19, 2001) reveals many issues. LPAB was told different things by various SFUSD staff but had no authority over the outcome. LPAB expressed concern about the accountability of former employees who presented information that was not accurate, and about leaving the damaged historic buildings to deteriorate. The public attending the meeting, especially parents of SOTA students, also expressed anger and frustration over the project’s fate. The attendees were informed that SFUSD needs only the approval of the State Architect and not the City. Notably, the moneys that were earmarked for SOTA do not cover the repair cost anymore (Irons 2002). Today, the 170 Fell St. building is still mothballed while 135 Van Ness Ave. building is being used as offices. There was no progress on the SOTA project until October 2007 when the SFUSD declared that they wanted to reinvestigate the rehabilitation of the complex into SOTA. However, the details are not yet clear as the current cost estimate of \$170 million requires public-private partnerships (Rocha 2007).

Case III: The Geary Theater

The Geary Theater, which was built as a cultural center for San Francisco in the reconstruction period after the 1906 earthquake, opened in 1910. It is a building of two parts: a theater and an annex. The theater building is of architectural importance, and is distinguished not only for the elaborate ornamentation both inside and outside, but also for its role in the service and development of the cultural and artistic life in San Francisco. The building houses the American Conservatory Theater (ACT), a non-for-profit organization founded in 1965 that is dedicated to theater and education. In 1975,

five months after it was transferred to ACT ownership, the Geary was officially listed on the National Register of Historic Places. In 1976 the Geary officially became a designated Landmark of the City of San Francisco (Page and Turnbull 1992).

The Loma Prieta earthquake caused extensive damage to the Geary. The mechanical penthouse fell through the roof and the plaster proscenium ceiling, and the light grid fell onto the seats and orchestra. The damage was sufficient to trigger the San Francisco code's requirements, including seismic upgrade. However, ACT had prepared plans for improving the theater prior to the earthquake. This provided insight on the needs and the future of the building.

Compared to the two cases above, the recovery of the Geary was short and simple. Still, the recovery process encountered several complications since the plan proposed a major rehabilitation project. The main issues were understanding eligibility for FEMA funding, the roles of involved players, the process of applying for funding, and the constraints of working on a historic building. The most important issue was the eligibility of seismic mitigation work for FEMA funding, which seem to have been unclear for both sides. FEMA stated that they could only support compliance with the requirements of state code and not the more stringent local municipal code. After extensive deliberations, in which ACT asked for interventions from political figures, FEMA declared that the mitigation work was eligible (Hamlin 1991; Winn 1991).

Letters indicate that, early in the process, the SHPO provided advice to ACT on possible sources of complications. These included the need to use the State Historic Building Code as the prevailing code, the potential conflict between that code and the City code, and the need for early coordination with the city building officials to avoid any surprise issues later in the process. Also, ACT was advised that there are certain requirements in the State Historic Building Code that they would need to address, such as the Historic Structure Report. This advice came before the Section 106 consultation started and this collaborative approach helped prepare the owner for the requirements of working on a historic building.

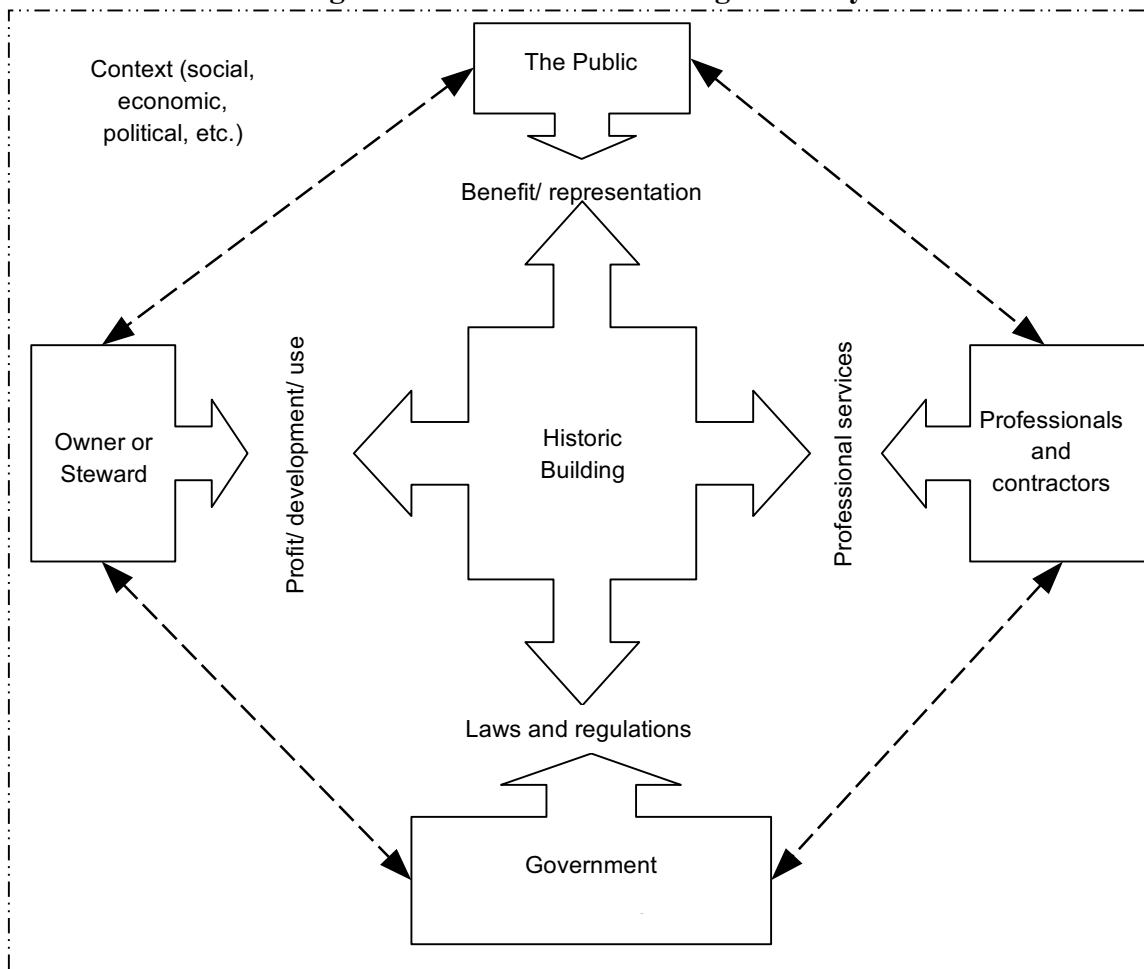
ACT coordination meetings with FEMA were periodic and covered different issues. The revised ground breaking schedule was set for April 1992 (delayed from 1991), but the Section 106 consultation didn't start until September 1992. The consultation faced several problems as most interior spaces of the Geary Theater were affected by changes, and all spaces of the annex building were to change. Therefore, the consultation aimed at reducing the effects of such changes on the historic character and integrity of the building. This required the owner to make alterations to its plans and sometimes to provide more detailed drawings for their proposals. Based on the available letters, the owner was able to reach acceptable solutions on most issues, but one issue remained unresolved, which is the addition of a floor to the annex. Lack of funds eliminated this item from the plan. Since ACT did not cancel its performances, it was renting theater spaces during all the repair work and, consequently, was pushing for a quick finish of all

paper work. The Memorandum of Agreement (MOA) for the project was signed on February 14, 1994. The project construction work was finished a few months later.

Variables Affecting the Recovery

There are four categories of variables influencing building recovery (see Figure 2)— 1) the building, since each has its own characteristics, 2) the bureaucratic process, which identifies the type of communication and collaboration that takes place, 3) the players, as each has its own relationship with the historic building, which is regulated through existing laws, and 4) the general context of the recovery, which influences the other variables. The arrows among the players indicate the communication of values, beliefs and ideas, which should be achieved through the consultation process. However, the study indicates that such communication is not always efficient so it is shown as dashed lines.

Figure 2: Variables Influencing Recovery



Based on comparing the three projects, the variables influencing recovery were

organized in Table 1, and the following themes were identified: the process, the players, the context, and the building. Each of these is addressed below.

The Process

Under this category are the following themes: initial positions, the overlay of laws and regulations, early consultation with the players, project management approach, and the effectiveness of stakeholder participation.

Initial Positions. The path to recovery starts at the response stage, as it sets the mindset of the owner towards a certain goal. This initial position is influenced by several factors. Undoubtedly, there is an initial state of confusion with all owners of red-tagged buildings but, it is usually followed by an early decision that the owner perceives to be the best solution according to the available information. Early decisions set the stage for future developments, as they influence the goal of recovery, and subsequent decisions are directed toward reaching that goal.

The initial positions of the owners of the three projects differed. Unlike the other two projects, ACT had an early plan for repairing its building. The challenges that it faced were mostly bureaucratic procedures. In contrast, the SFRA decided to demolish the Williams Building and SFUSD was confused about the future of its red-tagged building. Since all three cases were red-tagged, it may be deduced that when a building was having problems before disaster, such problems will be augmented after disaster damage, and such damage may be used as an excuse to support demolition.

A factor that influenced the early stances of the owners was the clarity of the initial information obtained from FEMA. As the main source of the funding, FEMA regulations and bureaucratic procedures play a central role in the recovery process. FEMA initially recommended the demolition of 170 Fell St. building, (then changed its position after new cost assessments). This introduced confusion about the future of the building that was augmented by the initial lack of a clear plan for the building. Also, in the Geary project, FEMA stated in an early post-earthquake public hearing that seismic strengthening would be covered, then refused to cover strengthening. Early directions set the owner's state of mind and, while owners would have some flexibility, changes can obscure the goals for the recovery, create delays, and may lead to loss of trust.

An important contributor to the initial position is the owner's perception of the red-tag. This problem has been cited by literature as one of the main sources of conflict for historic buildings (Spennemann and Look 1998). For both the Williams and Fell St. building owners, the red-tag was used to support the argument for demolition. This is especially important in situations in which the owner has pre-earthquake perceptions that demolition is the most feasible option for property development. Significantly, all demolished buildings were red tagged, which might have helped in constructing widespread misconceptions about meaning of the red tag.

Table 1: Variables Influencing Building Recovery

	Process	Players	Context	Building
Process	<ul style="list-style-type: none"> ▪ Inconsistency ▪ Conflict of policies ▪ Overlap of regulations ▪ Gaps in laws ▪ Priorities 			
Players	<ul style="list-style-type: none"> ▪ Knowledge ▪ Expertise ▪ Compliance ▪ Professional services ▪ Administrative culture ▪ Early guidance ▪ Set goals 	<ul style="list-style-type: none"> ▪ Value differences ▪ Cooperation ▪ Trust ▪ Leadership ▪ Clarity of roles ▪ Hierarchy of power ▪ Professional opinions 		
Context	<ul style="list-style-type: none"> ▪ Participation effectiveness ▪ Other disasters ▪ Politics ▪ Technological know-how ▪ Regulations and policies 	<ul style="list-style-type: none"> ▪ Response to local participation ▪ Initial position ▪ Resources ▪ Powers ▪ Foresight/vision ▪ Local limitations ▪ Codes 	<ul style="list-style-type: none"> ▪ Community needs ▪ Community activism ▪ Local limitations 	
Building	<ul style="list-style-type: none"> ▪ Damage level ▪ Complexity of repairs ▪ Clarity of significance 	<ul style="list-style-type: none"> ▪ Need/utility ▪ Stewardship ▪ Level of intervention ▪ Perceived feasibility ▪ Perception of significance ▪ Pre-earthquake perceptions 	<ul style="list-style-type: none"> ▪ Importance for community ▪ Codes and policies ▪ Challenges facing community ▪ Complexity of repairs 	<ul style="list-style-type: none"> ▪ Complexity of repairs and rehabilitation ▪ Architectural and historical qualities

The overlay of laws and regulations. As a federally declared disaster, the recovery process for each building was subject to an overlay of local, state, and federal laws that were not always clear to all players. Some respondents mentioned that they discovered new requirements, or conflict of requirements, only after the studies for the project were completed and they were applying for City approvals. Requirements of local city codes were neither conveyed nor covered by FEMA. Furthermore, some respondents felt that FEMA and SHPO were pulling in different directions, as SHPO expected costly repairs that maintain the historic fabric and character, while FEMA pushed for cost reductions.

Since FEMA is the main source of funding, its application process influences the recovery process in general. The documents indicate that owners had false perceptions of the bureaucratic procedures and funding eligibility, in addition to lack of understanding for the roles of different players. Also, the application process produced negotiations, appeals, and adjustments. The followup on the application requires experienced personnel so applicants are advised to hire specialists for the FEMA process (Wilson 1991).

Early consultation with the players. Although the owners must coordinate with FEMA, their willingness to coordinate with the other players is important. Local city boards, interested organizations, and other public agencies can provide valuable feedback. Consultations with the SHPO in particular are important. Early coordination helped the 170 Fell St. building in the early stages, as the consultant corresponded with SHPO and received advice on possible issues. This coordination did not exist later in the recovery of that building when new plans were developed for its replacement without coordination with SHPO. The consultation was delayed to the point at which the owner had set ideas about the future of their property.

In contrast, the recovery of Geary Theater was simpler as ACT consulted with SHPO throughout project studies development and, although they had to make changes, such changes did not require major backtracking. As such, early consultation provides feedback for the professionals early in their project development, reduces surprises for the owner, and facilitates preparedness for possible process complications. Interestingly, early consultation may indicate attitudes towards the historic building, as both owners who wanted to demolish their historic buildings delayed SHPO coordination.

Project management approach. The choice of consultants, frequent change of consultants, and postponing of major decisions had a negative effect on both the 170 Fell St. and the Williams Building projects. The Geary project, however, made fewer administrative changes throughout project development and ACT made most of the important decisions early. As such, there were no major gaps in the line of project progress. This may be a result of ACT's pre-earthquake plans and studies of the needs of the building, which provided a clear strategy and specific management goals. This characteristic supports the argument for pre-incident planning (see also Schwab et al 1998; Wu and Lindell, 2004). Also, owners' choices of consultants, their knowledge of applicable standards, and their stance towards historic preservation influences project development. For example, some professionals in the SOTA team had negative stances towards historic buildings, which they declared in public meetings.

Effectiveness of stakeholder participation. It is important to acknowledge that historic buildings have different values for different groups. Therefore, public participation helps in bringing out the conflict of interest as well as the possible common ground. However, effectiveness of the participatory process was limited. Not all values for stakeholders were addressed which, in the case of 170 Fell St. building, made underlying conflicts manifest. From the available documents, it is clear that SFUSD did not consider public participation important, nor was participation considered a tool for improving the project, but a formality to clear before proceeding with its initial plan.

The Building

Under this category are the following themes: the level of needed intervention, location, visibility, and ornament and detailing.

The level of needed intervention. Naturally, the major rehabilitation of a building entails more time than simple repairs. Aside from the time required for professional studies, FEMA assesses the suggested work and SHPO reviews it, followed by public participation. Furthermore, respondents pointed out that historic buildings that had had a history of neglect faced more challenges in recovery, as they faced issues of poor maintenance and lack of utility. On the other hand, the Geary, which required a major rehabilitation, did not take a long time in reviews. This point clarifies that major delays are not results of the review itself. Instead, it is the type of suggested work, its effect on the integrity of the historic fabric and character, and the building's eligibility that require so much time.

In contrast, the rehabilitation of 170 Fell St. and 135 Van Ness Ave. buildings required major interventions involving reviews and disagreements. In acknowledgement of the complexity of the project, there were many compromises historic preservationists made to accommodate the required changes. Still, SFUSD maintained that no feasible change would make 170 Fell St. building suitable for SOTA, which was the major impasse on this project. This finding directs attention to the importance of the attitude of the players and their flexibility as a major variable.

Location. The location of the buildings influenced their future use, hence decisions about them. Available documentation reveals that the 170 Fell St. building complex was determined as the best place for SOTA based mostly on its location in the periphery of several visual and performing arts centers. Moreover, the Williams Building was part of a redevelopment area, creating special pressure for revitalization. Public-owned buildings' locations influence their future use and possible utility to the community.

Visibility. The repairs of important buildings received public attention through media coverage. Newspaper clips cover the recovery of several buildings whose importance was gained through several paths: symbolism, economic profit, political interest, or needed public utility. Further research can investigate how specific buildings attain importance for the post-disaster community. However, both the Geary theater and SOTA were highly publicized and were considered important, probably because the San Francisco community values arts, hence generating political attention. Also, landmarks were of importance. City Hall received attention and more than \$90 million in recovery funds as an important city landmark. This attitude also extended to the Civic Center historic district, which received a face lift after the earthquake (King 2004). Respondents had the perception that the Opera House received early attention and recovered quickly mainly due to its importance as an income generator for the City. However, this does not seem to be part of a conscious plan for addressing sites that are of relevance to tourism, which is surprising as San Francisco and the Bay Area are important tourism destinations.

Ornament and detailing. It is interesting that ornamentation and detailing did not have a major contribution in the delays of the projects. The Geary Theater, which has the most detailing and ornamentation, faced the shortest delays despite the fact that the

detailing and special materials in the interiors of the Geary required hiring a specialist and additional attention during construction. Correspondence for the three projects indicated no major problems in handling materials or details.

The Players

Under this category are the following themes: access to, and management of, resources; perceptions of the building, trust between players; internal management and administrative culture; and attitude.

Access to, and management of, resources. Extra funding was needed for all three projects, but the ability to collect the needed money varied among owners. SFUSD did not have sufficient funding throughout its project although it had the power to issue bonds—which may indicate internal management issues. However, some professionals believed that SOTA’s estimated cost at that time was exaggerated in hope of supporting the argument of demolition. Nonetheless, repairs are now more expensive, and the money that was earmarked for repairs would not cover the costs now (Irons 2002). On the other hand, ACT managed to obtain several grants and donations over a six-year period. This is an accomplishment similar to that of the San Francisco Opera House, which ran a major campaign for collecting its recovery funds. Another approach was undertaken by SFRA which did not conduct any repairs but, used the money for other projects and deferred the repairs to a future investor.

Perceptions of the building. Under this theme are several variables. Perception of significance is important and it needs to be clear ahead of disaster, as otherwise that significance is disputed after disaster. Debates about the significance of the Williams Building and Fell St. building arose between historic preservationists and the owners, and was a major source of complications. Clarity of the significance can not only help reduce conflicts about demolitions (Eichenfield 1996), but also may have an effect on the owner’s willingness to put the extra effort for maintaining a building’s historic fabric and character. Therefore, listing can provide a clear significance statement and should be done prior to disaster onset.

Pre-earthquake perceptions of the building’s utility are also important. Several respondents explained that buildings that were perceived as an inconvenience before the earthquake faced more challenges as the owners would use the damage as pretext for demolition. The intentions of the owners are influenced by their pre-earthquake perceptions of the feasibility of maintaining the building. Therefore, many buildings that were neglected prior to disaster faced conflict afterwards, which can explain the situation at the Williams Building. Conversely, ACT had pre-earthquake plans to rehabilitate the buildings that guided its decisions afterwards.

Trust between players. Letters reflect a lack of trust between some of the players. In particular, there is a serious lack of trust between most respondents and FEMA, which may lead to discord.

Internal management and administrative culture. Issues of internal organization influence the recovery process. On the one hand, the stability of staff and leadership created delays for the Fell St. building. On the other hand, the institutional culture of the owner influenced how it managed the issues it faced and the recovery process in general. Both SFUSD and SFRA are accustomed to autonomous management approaches as they were independent agencies with vast powers. Their administrative processes supported autocratic decision-making in which public participation came to be considered a mere formality. This created a discord after the disaster as the other players' opinions were marginalized.

Attitude. Cooperation, flexibility, prudence, and compliance were all elements that differentiated the projects. Throughout the process, the SHPO and FEMA provided information about the process and possible sources of complications. Sometimes the owners had difficulty understanding why such requirements existed. Still, both sides would find a common ground within the applicable laws and regulations. On the other hand, the 170 Fells St. building became a battle, with the letters and meetings reflecting the adamant position of SFUSD at that time and total dismissal of the opinions of other players and stakeholders.

The Context

Under this category are the following themes: historic preservation activism; political support; other disasters; needs of the community; policies, laws and regulations; and technological know-how.

Historic preservation activism. An important variable was the action taken by several individuals and groups in San Francisco toward the preservation of the buildings. As such, the local community's diligence and initiative changed the outcome; buildings were saved from demolition. However, this activism alone could not help in providing functionality for the buildings. Thus, while activism can thwart demolition attempts, preservation of the buildings requires establishing their usefulness to the community. The owner's inclination to adopt that view is critical. In the case of 170 Fell St. building, it is clear that the owner remained adamant about the uselessness of the building, leading to a conflict, condemning the building to be mothballed. Mothballing has only deferred repairs to the point at which they became much more expensive.

Political support. Political support available to the owners of the buildings led to politicians' intervention into the process, which happened in all three cases. The interventions mainly reflected the limited knowledge available about the applicable federal laws and about their historic preservation requirements. Such interventions may be related to the visibility of the projects and their perceived importance to the public. The politics involved in the recovery process merits future investigation.

Other disasters. The occurrence of the Northridge earthquake in 1994 led to a reduction of FEMA coverage, and the 9/11 terrorist attack led to de-obligation of disaster

funds not used by 2001. Both situations required adjustments by owners and FEMA and required the revision of project deadlines.

Needs of the community. Educational, economic, cultural, and social needs provided a background against which the building repairs took place. Such needs are addressed through the rehabilitation of the damaged buildings for the use of the community, especially when these buildings are owned by government agencies or NGOs.

The socio-economic challenges and needs of the local community, the demographic composition of the damaged areas, and the challenges facing the community at large can set the agenda for recovery. For example, the increased number of homeless in San Francisco is an important aspect of recovery, even though there are no indications that it was taken into consideration. Recent studies show that residential buildings faced delays in their recovery after Loma Prieta in San Francisco (Al-Nammari and Lindell forthcoming). Comerio (1998) points out to the frustrations and delays in the recovery of multi-family dwellings. Moreover, disasters impact low-income individuals more severely, thus the rapid recovery of public housing and downtown hotels and apartments is important (Bolin and Bolton 1986; Comerio 1998; Phillips 1998). Unsurprisingly, the 170 Fell St. building was occupied twice by activists supporting the homeless in an attempt to show that the City can provide needed residential space.

Policies, laws, and regulations. Policies, laws, and regulations organized the environment within which recovery took place and it set the relationships between the players and the building, and among the players themselves. In the three cases discussed above, existing laws and regulations required the parties to consider the consequences of recovery actions on historic buildings, and set a process for the management of the possible effects of recovery actions—especially public participation in recovery plan development and review. These features of the recovery process and related challenges would have few parallels in a different regulatory context.

Technological know-how. This variable defines the type of knowledge and technology available for the treatment of damaged historic buildings or their code upgrades. The importance of the technological context is reflected in the available options for strengthening of existing buildings and their cost, and in the expenses of conserving historic materials and systems. Such options have significant influence on the feasibility assessment of post-disaster historic preservation.

Discussion

This inquiry reveals that the long-term recovery of historic buildings is challenging, dynamic, and can be improved. While the dynamics of recovery differed somewhat for each building, the cases reveal that successful recovery requires foresight at the early stages, which can be supported by pre-impact recovery planning. This finding supports the recommendations of Schwab and his colleagues (1998) and confirms the findings of

Wu and Lindell (2004). A long-term vision would guide the disaster recovery effort and help in steering the decision-making process. Still, the recovery phase is complex as many variables have to be considered within a dynamic context.

The variables that influence recovery of historic buildings can be classified into four main categories: the recovery process, the involved players, the recovery context, and the building itself. The nature of these variables strongly supports the need for pre-impact preparedness to limit recovery complications, as many variables can be addressed through pre-incident planning. Therefore, at the individual level, buildings of historic significance should have disaster management plans integrated to their Historic Structure Report to facilitate disaster recovery, as each building has its own distinct conditions. Similarly, at the collective level, cities should address the corpus of historic buildings they have by developing pre-incident recovery plans (Lindell and Al-Nammari 2006; Lindell et al 2006; Nelson 1991; Schwab et al. 1998). Buildings of residential and cultural use should be addressed specifically, for both historic and non-historic buildings, as research indicates that they face cost and time challenges in long-term recovery (Al-Nammari and Lindell forthcoming).

The cases also reveal that value differences have an effect on historic building recovery. In the reconstruction period after disaster, each group is likely to assume that their values will take precedence. As such, the attitude of the involved players has a great effect on recovery progress. Also, the different values attributed to the buildings by all groups in the community need to be acknowledged and addressed. The analysis indicates that a *conflict management* should be an essential component of *recovery management* (Al-Nammari 2005).

However, the delays that are faced by historic buildings should not be overemphasized. The cases reveal that the recovery of historic buildings entails more than just the repair of the disaster damage, but also includes adjustments and rehabilitation that maintain cultural resources for future generations. This emphasis on the importance of a long term vision focuses on extending the useful life of historic buildings and on maintaining their value for the community. The goals of recovery for historic buildings go beyond the regular functions of the recovery stage and cannot be compared to regular repairs of building damage.

Nonetheless, the recovery of historic buildings needs further investigation. The effects of different types of disasters and the dynamics of recovery in different contexts should be examined. The international scene is important, as historic buildings have drawn attention due to disasters in several areas (e.g., Jigyasu 2000; Langenbach 2001, 2005). As cultural resources that should be preserved for future generations, historic buildings are important community assets that need to be better understood so we can improve their recovery.

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