SEISMIC HAZARDS AND MITIGATION STRATEGIES FOR OLDER AND HISTORIC UNREINFORCED MASONRY BUILDINGS IN SMALL TOWNS IN OREGON AND WASHINGTON

CONFERENCE PROCEEDINGS

NOVEMBER 8 AND 9, 1984
MERCER ROOM VII, SEATTLE CENTER
SEATTLE, WASHINGTON

Sponsored by the National Science Foundation
University of Washington, Department of Civil Engineering
Washington State Office of Archaeology & Historic Preservation
Northwest Institute for Historic Preservation

Transcription and Editing of Proceedings: Laureen Mar
Northwest Institute for Historic Preservation

TABLE OF CONTENTS

INTRODUCTION

INTRODUCTION

Many of the most historic buildings in small towns throughout Oregon and Washington are in very poor condition, threatening in some instances the historic resource and posing a potential hazard for residents. This disturbing verdict is the result of a year-long study by a group of architects, engineers and materials specialists from the University of Washington's Department of Civil Engineering and a private Seattle-based consulting firm, Building Systems Technology.

The preliminary findings of the study were presented in a conference that was held at the Seattle Center on November 8th and 9th, 1984.

According to Dr. Neil Hawkins, Chairman of the University's Department of Civil Engineering and the coordinator of the research project, "We did not exactly expect to find the situation quite as woeful and frightening as we did. We were looking primarily at how local communities enforce building codes for unreinforced masonry buildings. Of course unreinforced masonry buildings are also the dominant and classic 'historic' buildings--the type that is the predominant building in Seattle's Pioneer Square and also in the small, older towns in the Pacific Northwest in such places as McMinnville and Jacksonville, Oregon and Port Townsend and Ellensburg, Washington."

The study team examined four towns in Washington (Vancouver, Port Townsend, Bellingham and Ellensburg) and three towns in Oregon (McMinnville, Oakland and Jacksonville). In all of about

thirty-five individual buildings examined, many of them 'historic' and in historic districts, approximately 75% were found to have potential structural hazards such as unsecured and untied parapets and cornices and significant deterioration of the brick and mortar joints.

Although this study found widespread and numerous structural deficiencies in the sample of building surveys, the focus of continued efforts, as emphasized in conference proceedings, will be on curative measures because these buildings are a signficant cultural resource and must be preserved, while at the same time maintaining adequate life safety. The Washington State Historic Preservation Officer and the Washington Legislature have been informed of preliminary findings and are anxious to cooperate in addressing the problems identified in the study.

Possible solutions which the conference recommended included:

1. Every community should identify their hazardous buildings and adopt a program to abate those hazards.

   There should be a more intensive survey of all existing buildings in selected communities of Idaho, Oregon and Washington. The survey should utilize as a starting point the California Historic Building Code. It is recognized that there are strong regional characteristics for existing historic buildings especially for construction methods that make direct applica-

tion of the California Code inappropriate.

2. A strong effort should be made to work with the Structural Engineers Associations of Idaho, Oregon and Washington as well as the Building Officials and Architects of those States and the Building Code Advisory Committees of those States to establish a regional volunteer review board to assist local communities in dealing with hazardous unreinforced masonry buildings and with the strengthening of those buildings.

   It must be recognized that such hazardous buildings are both a cultural and economic resource and their loss would have a severe impact on their communities.

3. Develop a pamphlet that can show building owners how to recognize hazardous conditions in unreinforced masonry buildings and what they can do to correct those hazards.

   In the development of that pamphlet, the various options should be investigated with owners and contractors to develop details both satisfactory to them and the Building Official.

The conference was co-sponsored by the National Science Foundation, the Washington State Office of Archaeology and Historic Preservation, and the Northwest Institute for Historic Preservation.

Page Intentionally Left Blank

FINDINGS:
SEISMIC HAZARDS IN UNREINFORCED MASONRY BUILDINGS
IN SMALL TOWNS IN THE PACIFIC NORTHWEST

Keynote, Padraic Burke
Chairman, Northwest Institute for Historic Preservation
Christopher Peragine, Architect
Andy Vanags, Materials Specialist, Lecturer,
Department of Architecture, University of Washington
Barry Onouye, Professional Engineer, Lecturer,
Department of Architecture, University of Washington
Patrick McGreevy, Land Use Attorney, McGreevy Taylor

Page Intentionally Left Blank

Padraic Burke:

As a part of our survey on the structural conditions and seismic hazards in unreinforced masonry buildings in the Pacific Northwest, we looked at seven towns to see how they enforced their building codes, including in Oregon, McMinnville, Jacksonville, and Oakland. They ranged in population from 50,000 in Bellingham and Vancouver to 870 in Oakland. We looked at the social and economic factors. We tried to get a mix of towns. Some are heavily dependent on tourism, some have like Vancouver, Washington very little tourism as an impact upon their economy. We looked at a total in detail of 35 buildings although we looked at 100 in some detail, over 100. Structural engineer Barry Onouye, and materials specialist in the Department of Architecture Andy Vanags, and an architect, Christopher Peragine from the Department of Architecture, were also involved and they went through each and every building and looked at them in a very detailed fashion.

We're going to call your attention to the boards over here in the back of the room, which have the photographs on it which summarizes some of our more glaring problems. **What we discovered in our survey of unreinforced masonry buildings in small towns in the Pacific Northwest was that with the exception of Vancouver, for all practical purposes, there was very little enforcement of building codes.** Some towns required nothing, I think Port Townsend is the most outstanding example where they do not require a building permit if the building official could not see the work from the outside. In other words, the entire building could and had been gutted, in some cases gutted and no

building permit. What we discovered also during the course of this is that we had a very, very serious problem, that we have a number of historic buildings in which the minimum types of work had not been done. The parapets were not tied, the cornices were not tied, pieces of facades were very weak and potential hazards in wind storms and in any type of event in which you have any lateral forces.

The recommendation coming out of this study is that the State of Washington adopt an Historic Building Code, at least one that focuses on unreinforced masonry buildings. The State of California has a building code, an historic building code, and the main element in it is that as the towns go out and inventory their hazardous buildings, the State will release them of liability in the event of an act that part of it falls down. Now that's rather sweeping, of course, then the onus is on the town, and everybody in that town will know who's got to have this building to go out and fix it up. But we're suggesting that you not only follow California's lead in that area, because the liability on these houses is very enormous.

We have an attorney with us this morning, Patrick McGreevy, who will be addressing the question of liability very briefly. But we also think that the minimum should be done, that they should go back and tie the cornices and parapets and do minimum things like that in each town. We're not suggesting that the towns bankrupt themselves or that individual owners bankrupt themselves in order to make the buildings safe. But we're just saying these are the minimum--not only to life safety but because

these buildings are a very rich cultural heritage of our region and they should be preserved and they won't be preserved under the petition as many of them are today. It's not a question of if this is the course, but it's just a question of when.

I'm going to introduce Andy Vanags and Barry Onouye and Christopher Peragine is going to talk briefly about our project and how he approached it from an architect's perspective. There will be questions after he gets through. We'll let him go through the presentation and then handle the questions afterwards unless there are any questions right now.

Christopher Peragine:

I had the pleasure of spending my summer crawling around through basements and hot attics with Barry and Andy. Barry teaches structures at the University of Washington, Andy is a materials expert, and I am an errant architect in that I decided to go back to school after a few years of practice and being licensed. The thing that I found so disturbing about so much practice was that there seemed to be less and less understanding of what was involved. There are certain componenets and elements and aspects of putting a building together that I fear we are understanding less and less.

There's nothing as solid as a brick building. That was a preconception I had grown up with. I'm from New Orleans, and since the 1700s we've been doing a pretty good job of preserving older buildings--not only preserving them, but I suppose more importantly, we've been using them. And so historic preservation

is really a community concern and it's an all-embracing and large concern in a city like New Orleans. But it's a hard place for an architect because all you ever do is renovation and how am I ever going to come to an understanding of how things are put together doing renovation work. So I somehow ended up in the Midwest for a few years and there's some dramatic temperature extremes there and there's that wide open American plain, and being a New Orleans native, I had never seen America before, so I left this rich heritage of unreinforced masonry buildings to go on to a place that had a different sort of tradition. Now I'm in the West where I feel like I belong, I'd like to stay, and I think there's the same sort of problem--how are we going to maintain any kind of continuity?--and I suppose a lot of people say the place to begin is with our buildings.

I'm going to show a few slides, these are just images from our survey this summer. As an architect, I'm wondering why it is that so many people, myself included, find older buildings so alluring, what's so nice about them. **Older brick buildings do a good job of maintaining the sort of virtues we associate with small town America. They're also a series of conventions and ways of responding to limitations, limited materials, limited methods, techniques. People tend to find unreinforced masonry buildings accessible.** It's a simple enough technology; it's one that evolves slowly over time, we're not suddenly confronted with glass curtain walls or dramatically changing techniques, but a technique with tradition. The sort of spaces that we can find in the old buildings too describe a real variety, and again, their role in

preserving the street.

This is the Palace Hotel in Port Townsend, Washington. I suppose it is a good example of someone caring about some architectural features in the building. But what bothered me so much about our survey this summer was that so many of these concerns were superficial, that if we take a lot of State and federal monies and pour them into the renovation of these buildings we can put it where the money counts, we'll put it toward the things that will help us make money and make this building buyable. But then we go down to the basement and everything's soaking wet. An assembly like the hotel--directly underneath the lobby, nothing but a lot of rot, and we may see some slides of that later. But that, I suppose, is the problem. Architects especially bind themselves dealing only with the nearer of concerns. If we're going to spend money--why not, if we're really going to preserve the buildings, maybe we can even start with the structure involved.

Again, this is in Port Townsend, it's the old City Hall as it turns a corner and it speaks of that tradition and the additions over time and how that can hold a town together. There are all these different elements and components, there are parapets, cornices, belt forcings, and they all work as a language that so many of us can begin to appreciate and understand.

This is again in Port Townsend, Washington. Here is a good example of the street face having certain obligations. It's a different sort of brick--that face being different from the sides, which might eventually have had a building alongside it. The best

brick we'd ever find on a survey would be the brick that had been painted--for instance, behind the signs, especially in Port Townsend which is on the water, with all the salt.

This is a basement. We'd go right from some of those buildings I was just showing and find a basement like this. We weren't to survey fire hazards or we didn't start out being concerned with simple loads, much less the dynamic loads and lateral forces involved in an earthquake. But we find so many conditions where things are questionable just from a plain structural load bearing point of view.

A big problem, this is up in an attic space. Here's water. The basements would be wet and the attic spaces would be wet and that's the real end. The few buildings that we saw that had flat roofs or in sections of buildings where there were flat roofs, that would be exacerbated. If you can get that water away from the brick and away from the wood, things tend to be a bit better, but this is the sort of leaching of the brick and the damage being done to the wood. A lot of this is obvious if we want to go down into the basement, but it's so easy when we're working on renovating other things to avoid going through those wet and hot places.

These are the sort of things you'll see the building having to endure. That's a major beam tearing the joist loads--it's not only the hole, but notice the cracking involved. That brings something else to mind, and that is that a lot of us are really concerned about the historical accuracy of the things we do and it's important to remember that these buildings have been

accommodating a lot of technological advances over time. All of these buildings have water closets, their plumbing had been installed when that technology became available. These buildings have electricity. When people began to understand and appreciate the convenience of that technology, they installed it. And I think what we'll begin to propose between Andy and Barry and myself is that maybe the time has come where there's yet another technology, one that deals with making a building more resistant to seismic loads, and maybe these buildings too can accommodate that kind of change.

There are some wonderful spaces and light wells. Again, I think that especially when most of these buildings were going up at the turn of the century, there were limitations involved and so natural light was needed, so stairwells needed to be topped with glass, but again, that isn't safety glass over my head and in fact, a piece did fall down, so there are concerns in terms of liability and safety.

But I think if we could begin to understand the pieces, the cornice work, parapet, the belt forcing, how all those things begin to work together, what is the difference between a ceiling joist and a trussing and how do these cripples fold up, the roof beams, what are all the pieces--at one point during the summer we were hoping that what we would be producing might be a handbook for owners. We had so many owners who were kind enough to let us come through their building and interested enough in our board that they would help us out a lot. We felt that we ought to be able to give something back and that to a large extent is why

we've included our survey format and you will find in your folders our way of going through and looking over buildings, what things we would look at. We were at most of these buildings for no more than four hours. So it's a cursory thing, it's not a scientific evaluation. But we had the same tools that all of us potentially have and that is just eyes that can look and are willing to see some of the issues involved.

This is a public library in Bellingham. It's a brick building that's been covered with stucco--and maybe that's not inappropriate. A lot of the times in a frenzy of historic preservation we think the best thing to do with brick is to expose it. So often that brick was never intended to be exposed, never intended to be bare brick, it would be the last thing people would do with that brick and there were good reasons for that. I suppose that sort of ties in with my whole theme of better understanding, not only of the forces but the elements involved too. Again, this is a classic in that I think the only way that unreinforced masonry can compete with a wooden structure like the one alongside it is if it's beamed and protected.

My final slide is an example of a building that has been renovated and that brick work you see in the front face is painted brick work, painted masonry units.

So, just in summation, as an architect, the lesson that I kept learning all summer long in the clutches of a structural engineer was that if we're going to help owners make their buildings beneficial to the community then they're going to have to be more than cute, more than something that looks a certain

way. But we're going to have to really understand what we're working with. That was an overview and we can talk in more detail now.

Andy Vanags:

My name is Andy Vanags and I'm with the Department of Architecture for the University of Washington. My particular area is teaching of materials forces to architectural students. I was brought in on the project to, in effect, accompany a structural engineer, Barry and also Christopher and then begin to evaluate some of the ramifications of the materials that are to be used in these buildings and make some form of assessment.

In the course of the survey, I began to deal with not what are called contemporary materials but a lot more classic materials and in fact the predominant material is brick. In which case, I began to try to research and try to understand brick, understand it in the material sense, in the structural sense, and to try to make sense of a whole series of observations that we made that indicated that in fact there was a whole array of different processes that were happening to the predominant material in these buildings and to try to put together what some of these might have been and possibilities or ways in which we might learn from them.

One of the central issues that we discovered in the towns that we visited in the Northwest is that there is a great array of brick text and correspondingly a great array of deterioration processes. If we were in Jacksonville, we were talking about a

Jacksonville brick. The deterioration of that particular brick had a lot to do with soluable salt contents that existed within the brick and failure of modes were associated with that. In other towns, we found that the brick would be hard-fired, more durable, more resistant to those same kinds of environmental forces. In other locations, we would go to Eastern Washington where we had freeze-thaw conditions and we found the predominate mode by which the brick was deteriorating was moisture infiltration and the subsequent freezing of the water in there and that was the particular problem in that town.

As we began to examine other elements within the building, brick seemed to be the most evident one since it existed in the greatest quantity. As we began to look at the internal structures, the characteristic in almost all of these buildings was that there was timber framing that was involved. In fact, if we were to try to characterize the source of what is functionally the deterioration of most of these buildings, some of which are in excess of 100 years old, then we'd probably have to deal with the whole issue of moisture and warmth. Bricks in and of themselves within the wall may be protective, may not be protective; on the other hand, moisture as it relates to the permeability of the brick can have a significant effect.

As we begin to move to the interior of these buildings, we find the same sort of problems. Moisture once worked with enforcements that are either gone or missing or permeability is increased and begins to get into the wood structures in the building. Christopher mentioned the notion of the wet basements.

Yes, ground water was a major problem, ventilation was a major problem, as well as changes in modifications of sidewalk levels, levels relative to these buildings that existed, so that in very many cases (the frequency is extremely high) we found that there was deterioration of main floor rooms of the timber work and structure of quality in those areas. In many circumstances, again it was local, in one town we found rather than a variety of species of fungi, we found that the prime form of deterioration was powder post beetles . The powder post beetles, in the presence of moisture, interestingly are able to function very well, and this would include joist ties or joist pocket in the walls, predominant on main floors, in many cases on upper levels as well.

So as we began to assess these buildings, while there didn't exist the great number of physical ties, meaning government anchors or other kinds of metal objects that went into the masonry, in very many circumstances there existed no longer any sort of wood ties either. That is, I think, one problem that needs to be addressed since the problems associated with it are not only seismic but in fact when we're talking about gravity loads and changes of use that we've seen in these buildings, gravity loads in and of themselves become a major issue. In many circumstances, though not that many, we found mechanical equipment being placed on roofs that were never designed to support it where they had huge weights of put on segments and then as we began to try to a load trace and to find out what's going on with these elements, we found that there was no possible way that

they could hang in up there, much less if any lateral force came along--they would unfasten. There were shims put in and a couple of toenails into the material.

As it relates to metal objects, we found in many circumstances that the ornamentation and the cornice work (this is again town specific) was in fact sheet metal. As a matter of fact, in the Northwest, in the ornamentation and cornice work, that was the most common type. So we began to investigate the kinds of materials that were used and typically turn metal, which is a sheet product that is coated with tin and lead was used. It's still manufactured today, it's still used, predominantly in restoration work as well as in other circumstances, and we started to examine what 100 years has done to some of these materials. The paint coat on the outside worked fairly well. In some instances, there were problems associated, for instance with Port Townsend, with an aggressive salt water environment. It's right on the bay, salt fogs come in and so in that particular circumstance we noted that the corrosion processes associated with all these metals were a lot worse than if we were talking about inland towns as Salisburg or Jacksonville. Again, we had a problem in the sense that we were trying to access these buildings but on the other hand we couldn't take a crow bar and begin to pry off a whole lot of material although in some circumstances maybe as a bad indication of the condition of the building, in most cases we didn't have to, it had already done that all by itself. So accessibility and then beginning to look into the corrosion products that existed in the flips and brackets and ties we found

is a common problem. Awnings and campings in particular very frequently had iron or steel tie rods going back. Again, sheet metal was used. Those had deteriorated. Fittings and fixtures are something that became very important to look at.

Another very common problem associated with the corrosion process were sidewalk accesses. Where we had street elevators and others and in almost all circumstances where we accessed the space unless it had been closed off (which incidentally occurred in quite a few places), the extent of corrosion of what would be early reinforced concrete, in some places exposed steel strapping over concrete, were in essentially very, very poor condition.

The prime issue from my point of view and as, if anything, advice to the building owners, is to begin to try to understand the deterioration processes. There are a number of people, snakes or salesmen, that have some wonder product that will crystalize in the material, that will protect it in some way if it's put on with the invisible and will do something, we found a lot of that as well, that there are a lot of people out there trying to sell you a whole lot of stuff without much of an understanding of, in fact, the process that's going on within the building itself. Much of the central concern of this whole project was seismic. At the end of the project, my concern is not only with the ability of these buildings to somehow be able to withstand lateral forces but how in the world do we continue to maintain and protect these buildings.

The issue is that we're going to lose them. **We can lose these buildings in earthquakes or we can lose them simply by**

neglect and deterioration. This, I think, is an important central point in trying to assess what the condition is of these buildings.

Barry Onouye:

I'm Barry Onouye and my role in this particular survey that we did involved examining some of the structural elements, assemblages and so on in a whole variety of different buildings that we examined and one of the things that I think is necessary that I point out early on is that this was not in fact necessarily to be conceived as a thorough engineering study. We did in fact use very heavily some of the recommendations for methodology for field surveys established by a group of engineers in California, one of whom is going to be our key note speaker, John Kariotis. We tried following as much as we could the recommendations in terms of what should be examined, how one should examine the structure. We did a relatively abbreviated form of that because of the time limitations that we had in investigating these buildings.

I think one of the ways I can summarize best the findings that we had is to look at some of the general conditions that were observed. These are not specific to any particular building and in fact they were common in many of the buildings we examined. These are some of the issues that I think need to be addressed. All of the buildings did not, in fact, occur in the same seismic zone. We're looking at buildings from different towns that are in different seismic zones or types of deep acceleration zones or whatever methodology one wants to use for determining the

seismicity in an area. However, I think some of the elements that we found in our survey and that we thought were of concern in terms of seismic hazards would probably be of concern regardless of the seismic area zone.

So let me get into the slides where I'll talk from them. One of the common things that we did find that was of concern to us were tall parapets and overhanging cornice work. Some of the cornices were we found, in fact most of them as Andy just talked about, were usually turn metal, sheet metal, or in some cases timber. However, the parapets themselves were in almost all cases unreinforced masonry. We did find in most cases the parapet conditions were of concern because of the lack of bracing or ties to the roof system. They literally stood up at the roof diaphragm level and were just up there. The condition of much of the brick and mortar at that level was also concern because of the amount of deterioration that had already occurred. We found cases of, in fact, loose brick.

This slide shows an example of one that was tied. The ties, however, will probably need to be reexamined for the height of this particular parapet to determine from an engineer's standpoint whether they are, in fact, adequate to resist seismic lodes.

In conjunction with the parapet condition that we observed, this shows a shot of a ceiling and roof frame system where the typical condition was that these ceiling joists were pocketed into the masonry walls; the roof joists, on the other hand, were usually not attached to the masonry. So the unsupported height of the parapet in fact was higher than what was visible from the roof

level and in some cases the ceiling space was about 4-5 feet, which meant that only the tie position was at the ceiling level, which means the defective parapet height was in some cases close to 9 feet. In some instances we found ceiling joists had shown cases of some deterioration or rot because of the leakage problem in the roofs. We also found as a relatively common problem that some of these buildings have been abandoned in the upper stories for many years. The main floor was in fact used, however, the upper stories had been closed off for many years, 20 years or more. Because of that, I think that may have precipitated another sort of problem where if a roof began to leak, it wasn't detected until much later where in fact moisture had accumulated, rot had begun in some of these draining members, that the joists that framed into the masonry walls pockets were starting to show deterioration.

This one shows, you can see it on the lower level, the ceiling joists and factors butting right into the masonry wall. Cornice work--we found some cases where there appeared to be considerable deterioration. There was concern about the maintenance of some of the cornice work, in some cases they were in fine shape. Another concern that we looked for is what happens in terms of large openings on the roof level, the diaphragm level, continuity at the diaphragm level. Some of them, as Christopher pointed out, were used as part of an architectural element where it also, in fact, brought in a lot of natural lighting. But from a structural standpoint, this also can in fact present some problems.

This one shows an example of a couple buildings that we found in government ties and government anchors used. This was, I'd say, more the exception than the rule in the buildings that were not undergoing or had undergone renovation. We also did find, however, some examples where structural rehab had occurred. Considerable amount of work had been done in terms of laying used diaphragms and plywood diaphragms to the flooring systems, in terms of stiffening of wall panels with the addition of steel columns, strapping between different building locations, and also tying these columns to the framing above. So we had conditions where we found no evidence of ties in some cases where they were very well engineered. We also examined cases for unsupported gable ends. In some of these buildings, the gable ends reached fair heights and we found very little evidence of ties on these gable ends. So they were in effect almost like parapets sticking upp in the air with very little ties. We also looked at cases where you had relatively open first floor levels with a post and beam system where in the upper levels there were incredible amounts of partition walls, a lot of adapting or stiffening elements at the upper levels, where when you got down to the store level there was an absence of any sort of walls except for the exterior walls.

This one shows another example of additional support members added to the structure, this was to take major lodes. I think this was a chain-of-use condition where now the lodes are much larger, they need more support systems added to it. But then on the other hand, there was also an absence of some ties. We

examined cases of large unreinforced projections such as this chimney. We looked for locations of ties and on this particular one we found some ties but the last 10 or 15 feet or so was untied.

We also tried to examine and note places where we found deterioration or cracking. In this example, the lintel in the center, I think you can see that displacement had occurred right over the lintel. This is the bottom view of it where you can see a real physical crack, there had been some movement. We found cracking over some other masonry or brick lintels that showed an incredible amount of separation and in fact these lintel areas may be extremely necessary for egress during a seismic event or fire or whatever, these are concerns.

This one is an example of a settlement problem that we observed in the interior of one structure. The bent pieces that you see were apparently the original support for a metal gate. Now this is on the interior from that settlement. Incredible buckling had occurred and the support members of it, but the displacement had occcured. We found in some examples at the basement level, discontinuity and the replacement of some members because of rot; new members were added but then a lot of discontinuity was present. Some of these, in fact, were still sitting on unreinforced pielapses, either of rubble or of brick.

Examples of reshoring a floor system because of the deterioration of the joists, again, the beams and re-posting. But we've also discovered that in some cases of renovation where new posts were added and not being sure how early these new posts were

added, they had also shown additional rot, the new posts were starting to rot out because of the moisture problem that was present at the basin.

An example of a major column coming down onto an unreinforced masonry pielapse.

From some of the visual images, I think one of the recommendations that I would have for the balance of this workshop is for a lot of you who happen to be building owners or developers who are perhaps anticipating doing some work on your building to get as much information as possible with regard to the economics that will be involved, sources of funding because a lot of these, I think, are obvious things that perhaps should be looked at. They need to be looked at, but now the issue is, how do you do it? What are the sources of funding that need to be addressed? Where can you get help? Who are the resource people that may in fact give you the assistance in alerting you to these problems?

If you are going to go through renovation of structural rehab of your building, my recommendation would be to retain the services of a structural engineer. Thoroughly go through and assess the building. Ours was just a survey, a field survey, and it wasn't done to the point where we had technical information that would be useful in engineering analysis. I think some of these require that sort of sophisticated study of the building. None of the buildings that we surveyed did we by any removal of finish find all of the details. We had to go by just pure visual inspection with no removal of finish. So I think thorough engineering analysis needs to occur in some structures, not all

of them but some of them.

Patrick McGreevy:

I think what we've seen here is slide after slide of a ticking time bomb, and this time bomb is not a question of if it goes off but when it goes off. It troubles me that we see it is a common problem in most of these buildings. My role in this whole project was to indicate what was the liability both from a private point of view and a public entities point of view of having these time bombs sitting on our streets.

With regard to private liability, I think it's pretty clear you have a duty to protect people in your building and on the street. This duty is one of inspection and maintenance. And I don't think we're seeing a lot of maintenance and inspection out here. What will happen is we'll have some sort of lateral force, bricks will come down, people will be hurt, and we'll have lawsuits regarding this.

.....if damage occurs with the Act of God, then the effects of that negligence you will be liable for. It's the classic example of two buildings standing together and there's a little shaking of the ground and one of them falls and the other one doesn't and the first one that did fall was improperly maintained, the Act of God defense will not apply. So the advice that was given earlier that you better get in there and check the structural integrity of the building I think is advice that should be taken. I think you also might want to look at your insurance policies to see if you can buy some earthquake

protection which is possible with an additional premium. We also saw some slides of city halls, firehouses, in which the city government as an owner of buildings is also in that same liability coverage. If they are not inspecting or maintaining their properties, then they are going to be liable also.

The more difficult question is when the government services starts to get involved in these private properties, when they start providing inspections, or they give our permits for changes in these buildings--at that time are they liable? It's an open question in Washington whether or not they're liable. Right now they have the attitude that if they have a hands off approach to these time bombs, then they will not be liable. The law under Washington indicates that unless you establish some sort of special relationship with the private owner, the city government and its inspections or permits will not be liable. So what the city governments have been saying is "Well, I'm not going to have this hands on approach to these time bombs because I'm afraid that I will be liable." What is happening though is the court is finding the special relationship. They say "Well, if you had direct contact with this property owner then you might have a hands on relationship with them." If you were out there and the statute that you were working under says that you have to abate that known hazard, then you have a hands on approach.

What we're recommending is a State Historical Building Code which includes a provision that the liability of cities and towns would be limited if they adopt a hands on approach. What we're saying is that we need the cities and the counties to go out there

and inspect these buildings and get involved in the preservation of these buildings without a fear of liability. This is not a unique idea, this idea has been adopted by statute in California where they say if cities and counties go out there and get involved in these buildings, then they will not be liable for any sort of imputed negligence on their part.

PANEL 1:
SEISMICITY AND SEISMIC DESIGN IN UNREINFORCED MASONRY BUILDINGS

Keynote, John Kariotis
Structural Engineer, Kariotis & Associates, South Pasadena,
Dean Ratti, Structural Engineer, Ratti & Fossatti, Seattle
Don Kramer, Structural Engineer,
Kramer/Gehleen & Associates, Vancouver
Dave Walton, Plans Examiner, retired, Seattle
Craig Owens, Structural Engineer, Port Angeles
Linda Noson, Washington State Seismologist,
University of Washington

Page Intentionally Left Blank

John Kariotis:

To give you a bit of background: following the San Fernando earthquake in 1971, I was asked by our association to try to make an effort to rewrite our seismic design codes for new buildings. That effort extended through development of what is the standards of 1976 of the Uniform Building Code and then eventually into the program of which some of you may be familiar called the ATC 306, which is the new document which as I understand is now being published by FEMA (Federal Emergency Management Agency) as a document that supercedes and is more of the state of the art than the current UBC. From that, we very quickly recognized that what we were doing for new buildings was taking care of hazard and life safety threats in the future. But we didn't even speak to the problem: What do we do with our old buildings, the existing unreinforced masonry buildings to all of the buildings designed before 1976?

You're all aware that we change our codes every three years: sometimes major changes, sometimes minor changes. It's our past that really constitutes our threat from natural hazards. Earthquake is one of what we call natural hazards; wind storms, tornadoes, floods, all of these are what we call natural hazards. We also have what we call man-caused hazards, which include fires and various things. Lack of maintenance may be considered a man-caused hazard. This is very important. Any time we're going to speak of behavior of buildings, we must always speak of behavior of maintained buildings. We can never rationalize behavior of a building that essentially has been allowed by nature to

deteriorate to the point where the decay can no longer be predicted. We make predictions of what we call "undesigned materials." We design modern buildings, we design all of the elements that go into a modern building. However, those buildings, in many cases that we speak of as our past, and those buildings that constitute a threat are what we call "undesigned materials." These buildings were built in whatever fashion and with whatever materials because it was a traditional way of building or in many cases we could almost refer to something that we built in 1950, for example, as verging on this "undesign" because we had different criteria in 1950 than we have today. We now have to go back and in many cases analyze those structures.

The analysis of a building is different from design. In our design of a modern building today, we have the flexibility to choose any material we wish and use it in the method that we wish. Any building for which we complete drawings and send out for bids has been thoroughly designed. An existing building exists, it doesn't fit rules--quite simply, you have to look at the building as it exists. For that reason, you cannot use the codes that we have written for design of new buildings for analysis of existing buildings. A code prescribes several things. It says: How do you make engineering calculations? How do you utilize materials? such as, a very simple thing, a concrete wall, which under new code must have .15% of the gross area of that wall in vertiical reinforcement and .025% of the area of the wall in horizontal reinforcement. That complies with the code. It does not necessarily imply that the building built that does not have those

minimum percentages is unsafe. Analysis has to indicate whether a building is, to use the word which is written in the code, unsafe. I personally never use that word because it is a go-no go belief. That is not true. **All buildings, even our modern buildings, constitute a threat. People would not be killed in earthquakes except by falling tree branches if we didn't build buildings.** It's as simple as that. So in one sense, earthquake threat is caused by man-constructed structures. So it's the man-constructed structures that we have to look at.

Now what causes threat? Property damage. The damage of that structure is what constitutes the threat of human life. Now we have to look at two kinds of things. We inherently design our buildings to limit property damage. We do that because of the tremendous economic loss that we would be faced with after an earthquake--if we lost housing, if we lost places of employment, if the businesses that occupied those buildings could not continue. The economic loss caused by an earthquake is not life safety. Life safety is something we have a great deal of concern about, but in reality our economic loss is what was recognized by the City of Los Angeles when they adopted a hazard reduction ordinance, a mandatory hazard reduction ordinance based essentially on reduction of loss of utility in a central city after an earthquake event. Life safety is naturally an emotional issue for all of us. **Surprisingly, our research has indicated that life safety or the reduction of life safety threat, is very easily obtained, and it is obtained in many cases, obviously, by minimalization of property damage.** If there is no property

damage, there obviously very rarely can be a life safety threat. But you can go beyond, very quickly, the reduction of life safety to minimize property damage. That, basically, is what we do in our new codes for design of modern buildings. They very rarely constitute a threat to life; they are basically written to essentially reduce property damage.

The codes in the building design say in 1970, before there was a major change in the Uniform Building Code, simply are going to have in the case of a high-intensity earthquake, as may occur on the Pacific Rim around the San Andreas, property damage that is not tolerable to building owners and can be mitigated with very little increase in structural cost. So we take that option in the design of a new building. But in the design or the analysis and proposal what we call retrofit or renovation of an existing building, it's totally different. You're going to have to spend money to reduce life safety threats and to reduce property damage.

Now in many cases, our analysis of buildings indicates, should you invest $10,000 to eliminate a tenth of a percent annual probability of $100,000--any actuary would tell you "No" because that is a probability and you would not be effectively spending $10,000 to probably mitigate a $100,000 from your life and the probability of that threat is one tenth of a percent. If you wish (and again, we're looking at property damage), you would buy insurance. You do not wish to be self-insured.

So now what we must do is we must start thinking of earthquakes as a probability, just as a tornado striking a

building is a probability. I've seen photographs back in upstate Michigan of a tornado that went through an old town up there with all unreinforced brick work there. Bricks lay in the street along the main street; it looked just like a city shaken by an earthquake. Detachment of a building wall of unreinforced masonry from the structure can be done just as effectively by a wind storm, severe extreme winds, tornadoes, those kind of velocities winds--as an earthquake. **Life safety is basically threatened by what we call separation of parts--those parapets, the wall itself, falling away from the structure. That constitutes in my opinion and from our observed damage 80-90% of the life safety threat.** Collapse of a building, total collapse of a building (as I'm sure you've seen in photographs of Caracas, North Africa, Central, South America where a total building collapses) does occur and is a threat to life but that happens in zones of high seismicity only. Collapse of a building in areas of moderate or low seismicity is extremely rare to almost nil probability. It's the separation of parts that constitutes the threat of a life. So now we have to start believing that what happens is that we have a crossover and the crossover of when you have to go to full building analysis is related to areas of what we will call high seismicity.

For high seismicity, we're going to use a term which we call effective peak acceleration because effective peak acceleration is something I can measure with an on-site celarometer. It turns out that it is an easy measure of energy. You always hear the announcer say that there was a Richter magnitude 5.3 in Casper.

What happened in Casper, Wyoming--nothing. Things fell off shelves, there may have been some broken glass, a few things of that order. But then again, we find it almost impossible and find negative correlations for so-called ground search shaking intensity and Richter intensity. Richter intensity is the total amount of energy released in an earthquake. It goes up and increases by the length of the fault. If I remember right, a Richter 8.3 takes the fault breakage of something like 175-200 miles. Well, the person in the midst of that thing, say in Palmdale, doesn't really care if the fault broke a hundred miles away because that's like a small event carrying a hundred miles away. So the intensity at any site is not related to Richter intensity because also the earthquake can be extremely deep seeded. There is a high probability of it happening here in the Pacific Northwest, way down in the ground. You find another common thing, say down around Eureka. The Mendocino scarpment has very large magnitude earthquakes but they're offshore. It just so happens that the onshore effects are very slight. Water cannot transmit shear waves. A large part of the path is blocked so you can have very large intensity earthquakes with very little onshore damage. There's a whole series of things that says Richter intensity is not related to ground motion intensity. So we always zone on what we call now EPA, Effective Peak Acceleration, and we use those contours.

I want to show you a few slides to give you a bit of the history of what we are doing and how to approach, in our opinion, seismicity of an area. This is a map that you will find in our

methodology and you will notice it has contours, it does not have zones and plats, but rather EPA contours, and you can see the difference. There is an EPA of .4 in the California/Nevada area versus an EPA of .2 around the Pacific Northwest and up around the Boston area and upstate New York area, .1 contour, and you'll see that there is a slight contour of .04 around the Yellowstone area.

But basically, this is a probability map. Now historically, if you were to overlay that map over the zones and zone them by counties or some district, you would get maps that have a tendency to look like this. As you can see, the map area has different kinds of intensities. This map actually has seven zones. We have decided seven zones is too many and will probably go back to four zones. But historically, this is what was used in the past.

If I remember right, in a code called the Base Building Code, you'll find this map. This map has to do with historic work. If you look along the St. Lawrence, you'll find because of the number of historic earthquakes that this zone along is the same as the zone in California. If you simply look at historic records, you find things like this. You find the area around Memphis and St. Louis is again the same. Now that is based on one earthquake that occurred there. While California has many earthquakes, we have to recognize that one earthquake as just a rare low probability earthquake. Besides, it happens to where the point is its magnitude is assessed by written history--we never have a way of ever measuring the magnitude of that.

This is a map that appears in your codes. You notice now that Zone 3 seems to have a relationship to the map that I showed

you first. But you will notice also that Zone 3 in California happpens to be the same as Zone 3 around the Puget Sound and there's still a Zone 3 around the Charleston area. This is why we do not advise when you are thinking of trying to establish a policy for a small community that you should rely on those maps that are published in your codes. This map basically is based on 1962 or 1965 research. That's twenty years old. We have made more progress in the last few years, almost every five years I would say we double or triple our available knowledge. So what you ought to do first to establish a policy is look critically at current state of the art zones.

Now I want to discuss the idea of probability, what it means to say there's a 90% probability of not being exceeded in any 50 years. Well, that's a statistician's way of saying everything has a probability. Annual risk happens to be essentially a term that I find everybody can live with. You have an annual risk of being involved in a car accident. You have an annual risk of being involved in a house fire. We have annual risks that we're aware of; annual risk is something that we can connect. For any one of those contours--let's take the one that's around Southern California, with EPA .4--what we would have to recognize is in that zone, where the contour level is such that there is about a 2/10ths of a percent annual probability, we're going to have a lot more small earthquakes. But basically if I come across this, this is an EPA of .4, it will say essentially what happens is that I have about ten times more probability of having an earthquake of half the intensity than I do of design intensity. You've got to

consider this in your planning process. You have a lot of small earthquakes of lesser intensity and if I were to project this up, I would find that if I went to this intensity, an EPA of .1, my number of probable events is 100 times more.

Let's ask again what happens in an unreinforced masonry building. We have observed a lot of buildings, shaken in California and Kellog, that are essentially in this range and this range intensity as indicated by instrumental data that was recorded. We find that parapets and parts start to separate at this intensity with a high number of them at this intensity. Almost all unanchored parapets are stripped totally from the building at that intensity. But it occurs with surprising frequency. It says that your life safety threat in this class of buildings starts at this intensity and becomes almost total at that intensity. That is, separation of parts. Where does building collapse occur? Not observed at all at this intensity, observed infrequently at this intensity. So it says that what you need to do is plan an earthquake hazard reduction program in any zone for the high-probability, moderate-probability or low-probability, if you happen to be on this contour.

Earthquake hazard reduction essentially has to recognize probability and it has to recognize that building performance is different at the different levels of intensity. Working with probabilities, I've found that we can never define the properties of the structural materials with the same range of probabilities. If I were to do a series of testing in brick work I would find wide scatters of values. I know that cracking starts in brick

work from a flaw and propagates because of what we call fracture mechanics like in rock. But does cracking of brick work constitute threat? No, it doesn't. We have found that in the shaping of structures of brickwork, like the very tall chimneys, like the mosques you see in Turkey and Iran, they're shaken by earthquakes quite commonly but they survive. They survive on a rather simple mechanism: as long as the center of gravity lies through the building mass of the building at the base of the building, gravity lulls, pulls the crack on each cycle of dynamic motion. So what happens with these buildings is not a forced problem, but a place prediction problem. That's the difference: the methodology is complete different from modern codes.

With one exception. Collapse of the exterior wall and collapse of a parapet occurs at low intensity. Why? Because the rest of the building is what we call an elastic structure and can act as a very efficient oscillator and throw down a parapet very easily. It's because all this undesigned material can work, all those plaster walls don't have a crack in them. We went to Colinga and photographed all of the interior plaster walls in the unreinforced masonry buildings where they typically had high density partitions because of apartments or offices upstairs. We couldn't even find cracks propagating off the corners of doors. The plaster walls were essentially uncracked. Colinga lost the majority of its walls simply because they weren't anchored or they were only two wide thick. Work was hard to come by in Central California and they built the walls two wide thick which caused the problem of stability which is related to the height and

thickness of the walls. The stability of those thin walls is what caused their collapse even if they were anchored, in many cases.

Which brings us back to the problem of gable ends and unanchored high parapets that extend up past the roof and are apparently unstable. We found in Pasadena parapets in buildings built in 1880 in which they brought the wall up three wide to the ceiling joints wide and then carried it two wides above there and in very large gable ends. Those collapsed in 1952 from an earthquake 70 miles away. Seventy miles away of a large earthquake the Taft '52 earthquake had enough of what we call velocity to cause those large gable ends, unstable and two wide thick, to collapse in Pasadena along the foothills. We have good transmission down the foothills because of the bedrock, being close to the bedrock, good transmission energy. So this can happen. The recorded EPA at the instruments of Cal Tech was approximately .lg. So essentially what happens is we have to recognize life safety threat--basically, separation of parts approximately 80-90% of it. The collapse of the whole building is very rare except in areas of very high intensity.

So when you're thinking of a hazard reduction program, how you're going to phase it in, what parts would be mandatory and what parts may be effective on the fact that the owner is going to have an occupancy change in this building, you might consider the probability of each of those occurrences. You might make one part of your hazard reduction program mandatory. You might make another part optional when the threat of the building because the number of occupants has been changed and factors like that.

Cities around the Los Angeles basin in 1955 after that '52 earthquake, the Taft earthquake as it's called, instigated a mandatory program of anchoring on the public way and near exit ways of all unreinforced masonry parapets and buildings at the roof only. That converted almost every building in downtown San Fernando in 1971 to a survivor--that one thing alone. I saw the buildings with the bond beams and the anchors with the wall below as much as a two inch offset but the wall wasn't in the street. It was a survivor. The building may be a total economic loss after that from just that limited program, but there was no life safety threat.

That's why our methodology so much hinges on the idea that any program must always involve anchorage--and anchorage at the top of the building is more critical than anchorage at lower levels. But even in the mandatory ordinance for the City of Los Angeles, if the person elects to immediately do what we call wall anchorage, he is immediately given long terms--up to nine years postponed full compliance. Not that this eliminates full compliance, but it it can be postponed because the major threat, which is to life safety, is immediately reduced. You need to think of all of that in establishing policy.

Dean Ratti:

It was about 1969 that I got involved with Ralph Anderson, a local architect who's done a lot of renovation work in the Pioneer Square area. At that time, I was totally ignorant of old buildings except I wished they would fall over--I haven't really

changed in that aspect--but all we really did was a kind of a cursory glance for dry-rot. It wasn't very long after that that the Building Department became involved so there wasn't any way for me to do cursory things without them overriding what we were doing. At first I resented it; now I've learned to appreciate it--spread the blame around sort of trick. **In all of this renovation work, there is a 100 percent probability that when an owner comes in, the first question he's going to ask is, "How cheap can I get out of this?"** So he's going to start off with that aspect that has never changed. We are now much wiser than we were then, although I'm certainly not at the point where I think I understand how old buildings behave. I don't even understand the progression we have gone through with our relationship with the Building Department, except that we have gone from initially tying the parapets down, and then tying the walls to the floors and the roof, and then we have gone into diaphragm work, and we are now perhaps overdoing it a little with all sorts of interior shear walls and bracing. **We have, in the City of Seattle, sophisticated the owners to the point where they recognize they're going to have to spend money.** Now I guess as design engineers, we should start behaving intelligently because the information is here and available for us. I think the Building Department is receptive to that; of course, the Building Department succeeds nicely by not letting you know what they're going to be receptive to so you keep trying new ideas.

Incidentally, with all of these hundreds of buildings that we have gone through, I don't seek old buildings. Particularly when

you talk about liability, you wonder what in the world am I doing in this business and I'm working that out with my psychiatrist constantly. Things have to be done; the demand is to do something. We will try to do it as best we can. Our experience in the City of Seattle has been good.

Don Kramer:

I'm Don Kramer, I'm a structural engineer from Vancouver. You saw some of the photos of one of our buildings earlier, the Elks Building that we renovated. I'm a little older than Dean, but I guess I'm one of the engineers that likes old buildings. I think that they're a challenge. **Old buildings are a challenge, and looking at them and seeing how they function, how they're going to function in a seismic event, and then coming up with a reasonable solution--I think that's what engineering is all about.**

Our approach to renovating old buildings is probably a little bit different than most structural engineers. We do feel very strongly about the ties. This report, I think, is excellent. It really points out all the things that any engineer should recognize. By the way, I am an owner of an old, historical building, and I did the engineering myself. I feel very comfortable with it, and it is an economic success. Our philosophy is basically tie the exterior walls to the secondary frame. Now that secondary frame can be a very simple secondary frame. For instance, in our building, with twelve inch unreinforced masonry walls, we built a six inch stud wall on the inside, we anchored the masonry to that wall in various stages,

basically about four feet on the center, and so we look at it this way: okay, we're building a frame inside of a building and we're going to tie that masonry down and that masonry then is no more than a brick veneer, so we're going to treat it as a brick veneer. So we have a system that is a vertical support system inside and then we sheet that with plywood and pick up some shear elements. We found that on two, three, four story buildings, that has been a very economical solution to the problem. It allows you not only to get the structural benefits out of it, but also to do some insulation of the exterior wall, put some new finishes on, and all these things that the owner likes. We've worked with Bill Slick of the Vancouver Building Department, we basically went in and told him what our program was and looked at it from a life safety standpoint and they've been very cooperative. But I do find old buildings a real challenge from an engineering standpoint. I do find them quite a liability too.

Dave Walton:

I'd talk to talk about the historic preservation program in the City of Seattle, which began in about 1973. During this time, we went through a lot of back and forth....

The main purpose of the first ordinance was to preserve areas of historical and architectural merit. It was designed to protect and set preservation guidelines for Pioneer Square and the International District. Other areas such as Pike Place Market, Belltown, and Columbia City were soon to follow.

The Building Department (it's now called the Department of

Construction and Land-Use) being the enforcement agency within the city became the focal point of some rather large public safety, political, social and economic problems. As buildings officials and structural engineers, we had one primary concern at the time, and that was public safety. Now the first reaction of each structural engineer within the department was to ask that the buildings be structurally be brought up to new structural code for new buildings. This would mean that a steel or concrete frame be placed inside the building that would resist seismic lateral and overturning forces. The masonry walls and appendages would be tied to this new structural system. This position was dismissed quickly for the simple reason that no owner, the city, or even the federal government could afford such a program. For example, the old Broadway High School auditorium received this kind of repair for a cost of between $3-5,000,000. The federal government paid for it, but that was too much money. It wouldn't work. As far as I know, no one else has been able to afford those kinds of costs since that time.

We knew from past history by reviewing the earthquake reports on file that our largest earthquakes occurred in 1949 and 1965. It was observed, by looking at this reports, that certain repetitious things happened to the buildings in these earthquakes. First of all, no building in Seattle, including the unreinforced masonry buildings, completely collapsed. In about 90% of the cases written up, parapets were damaged or fell; many exterior appendages such as cornices, eyebrows, loose bricks with deteriorated mortar fell; in a few cases, a portion of a wall

fell to the streets or public ways. We knew or it was reasonable to assume that Seattle or the Puget Sound region would be subject to future earthquakes of the magnitude of the 1949 and 1965 earthquakes and that some minimum structural standards must be met for public safety and building preservation.

The Building Department asked for and obtained a revision of the Pioneer Square ordinance in 1974. This first revision was called a Minimum Maintenance Ordinance. It required that the parapets be braced, walls be tied with through-bolts and exterior plates, and that all exterior appendages and brick be secured in the building, and, additionally, weather protection such as sealing windows, repairing deteriorating mortar, replacing dry-rotted structural members, and making required repairs to foundations where excessive settlement was occurring. Then we started a series of what they call Pioneer Square hearings with the owners. Now after many Pioneer Square hearings with building owners, it became apparent that hardly any owner could afford these costs. A few owners could afford the cost but why should they invest money in a building that was empty and would not return income on their investment? The Building Department finally abandoned this ordinance. Everyone knew after six months that such a program, if carried out, would mean confiscation of the buildings and ultimately the city or the county would own them.

In 1975, a bond issue was passed by the city voters that designated a fund for renovation of approximately eighteen buildings in Pike Place. For the next four years, buildings were

restored in that area. All of the walls were tied, parapets were braced, mortar was tuck-pointed, dry-rotted structural members were replaced, and appendages were repaired and secured. In addition, if a building had extensive storefront space or other obvious lateral stability problems, our department requested and obtained additional lateral stiffening to these buildings. The department required also that these buildings meet the present fire and life safety sections of the building and fire codes. Rehabilitation code requirements for old masonry buildings throughout the city was emerging at that time, and that was 1975.

In 1977 and 1978, the rehabilitation and repair of old masonry buildings began to pick up momentum within the city. At that point, owners and developers were able to obtain tax incentives through the federal government. HUD financing or similar low-interest loan packages were also being obtained. During this time, the Building Department revised the minimum maintenance ordinance in Pioneer Square again, as well as in the International District. It is truly a minimum maintenance ordinance. It requires that the owner repair leaky roofs, seal windows, remove or repair loose appendages, repair dry-rot, and generally arrest any further deterioration of these buildings, preserve them, in other words, until such time as a successor or future owner can rehabilitate the building. The owners could and did meet these requirements. At that point, we weren't into tying walls or bracing parapets. If there was a situation where a building had something dangerous, an obvious imminent hazard, that was taken care of right away or the sidewalks were barricaded or

whatever.

There was another factor as part of the building code that came into play at that time. During this time, the Building Department developed Section 104 of the Seattle Building Code and Uniform Building Code. **Seattle has rewritten the Uniform Building Code in certain parts and Section 104 has been rewritten. It basically states that if any owner or developer makes a substantial alteration or repair to his building, he must meet the full fire and life safety requirements of the present code and he must brace his parapets, tie his walls, check and strengthen if necessary the lateral stability of the building, replace dry-rot, check all members for vertical load, repair foundations, and secure all exterior appendages, brick and mortar.**

It further defines what a substantial alteration or repair to the building is. Now this is a very expensive undertaking, but it only applies if the owner is doing a substantial alteration or repair, which we define in the code. An extensive structural repair is one case: remodeling that substantially extends the physical or economic life of the building, if he's trying to remodel the building and it appears that he's extending the physical life of the building. A change of occupancy that is more hazardous: we defined what that was and that was if more people were coming in and out of the building, basically. Re-occupancy of a building that has been substantially vacant for over twelve months. In other words, what we're saying is if the building's empty and just sits there, then nothing happens, there isn't the same need to get into this heavy repair. Section 104 applies to

all existing buildings in Seattle but was developed from the Pioneer Square/International/Pike Place Market historic districts.

As a result of several forces--public safety, political, social, and economic--a large segment of the older buildings throughout the city have been saved, restored, and are now in use. Approximately 60 buildings in Pioneer Square out of the total of 150 buildings are completely restored. All eighteen buildings in Pike Place have been fully restored. Approximately 50 other buildings throughout the city have been restored in such places as Ballard, Belltown, Capitol Hill, Queen Anne Hill, Columbia City, and in the central business district. Under Section 104 of the Seattle Building Code and Uniform Building Code, all of these restored buildings meet the present fire and life safety codes. In other words, we worked right from the present Uniform Building Code of today. These existing buildings meet a quasi-earthquake code. They do not meet new earthquake code requirements for new buildings. The Section 104 requirements are reasonable minimum requirements that should be followed in other cities--or something similar, anyway. Again, I'm repeating myself here, but it's dealing with bracing parapets, tying walls, securing exterior appendages, meeting minimum lateral stability requirements as determined by the structural engineer and the local building official, meeting present vertical load requirements out of the code, meeting present foundation load requirements, and addressing any visible building distress problems.

To summarize, I believe other cities could follow a policy

such as the City of Seattle has. Number One: Have a minimum maintenance ordinance that prevents further deterioration of historic buildings. Number Two: Assist the owners with tax incentives and federal funding. Three: Enforce a Section 104 at the time of restoration and when funding is available. Four: Require that all restoration work be done with a permit and with a historic district group approval. Any lesser requirement would not be sound from a public safety, economic, or preservation standpoint.

Craig Owen:

I'm Craig Owen, a structural engineer from Port Angeles. I've done some work in Port Townsend as well in Port Angeles, some on existing masonry buildings, and think I'm leaning more toward Dean than Don on my fondness of working with the buildings. Partially, I think that's a little bit dependent on the building department's attitude in the region. I really appreciate people like Dave Walton and Jim Hart who's in the audience here from the City of Portland, because I used to be in a situation where we could argue with those people and it would be more of an advocate for the owner instead of standing alone out there trying to talk with the owner and decide what the best solution is and any contact with the Building Department instead of some resistance being met it's more like they open the doors and you go through. Basically, they say, "Well, you're the engineer, whatever you think would be good would be fine." The owner, typically, asks "What can I do as a minimum?" and you can tell them "Nothing, as

far as the local ordinance is concerned." Typically what I like to do is write a report on a lot of older buildings that people want to rehabilitate, and I give them a step-by-step itemization of the kinds of things they can do starting from tying their parapets and tying their walls together all the way through the potential of guiding and reinforcing their walls and bringing their building totally up to today's code. When they see the bottom line or the cost of the last remodel, it just about scares them away from the first.

Another thing I've done in the area is approach the building departments, urging them to perhaps look at the existing Los Angeles code for what they require as mandatory for non-reinforced masonry buildings, to perhaps use that code if someone wants to remodel and repair their building. At least there would be some reasonable code to follow and some consistency of a code to follow and it would not be as rigid as trying to bring it up to the standards of today. They seem to think that that would be fine, but I really don't get any official approval of it as a legal document, so once again, the liability question from the designer's is really up in the air.

In previous projects that I've worked on in the area, I've tried mainly to try to get them to attach their parapets and if they're going to do any part of a remodel to their building, I like to see them incorporate in their remodel items that would be of some benefit to the overall seismic resistance of the building. If they're working on an area and there's some unreinforced masonry that is in bad repair, at least surround them with

reinforced concrete or some material and some ties around them to confine them in a situation where they might get high vertical loads from overturning in an earthquake, and at least try to make some ties and some continuity from the building walls to the frame structure.

I changed my approach a little bit in some of this. I'm working on a building currently in Port Angeles, a government building, and the people are really concerned about the structure but typically, the public is concerned about gravity. That's what they can see, that's the thing that they're really concerned with. There's a roof truss problem; it wasn't really a truss to start with, they overloaded it and it started to sag. So we're going to rebuild it as a truss. In the contract, I specifically mentioned, I tried to perhaps bring a little enlightenment to them, that I was not going to touch the seismic resistance of this building. That was something different, and they really had a problem there. Potentially, they do. There are some potential problems if they had a severe earthquake with this building. That wasn't really enough to get them to want to do anything about it; however, in the design of the vertical load, in the modification that I'm really saying is for vertical load resistance, we're doing a few things to make it a bit more resistant to earthquakes. As an example, there are some adjacent beams that are hung off a wall and we're tying them to the wall because of vertical loads and we're also putting a steel column underneath it, attached to the wall. Of course, this is all for vertical loads. My hope is that this will give the nonreinforced masonry wall at least some

vertical, ductal member to be attached to and allow the wall, in an earthquake, to work in what we call two-way action, being much more efficient than the way it's currently resisting the lateral loads.

Of the reports that I've written--I have written about six or seven reports on buildings outlining to the owners what they can do--again, typically, they go another path and that's probably, obviously, because of economics. I think that it would be good to put out a handbook as Barry Onouye was saying earlier, that owners could use so at least they would be aware of the kinds of things they can do to improve their buildings. That way it wouldn't be required that they go to a structural engineer, they'd have this work done, it's basic things, the kinds of things that can be documented in a book that can be read. I think that the structural engineer's involvement is better used if you want or need to take that building to a greater degree of safety because you want to add on to it substantially or change the occupancy.

Also, I've advised owners to look at various publications that are already in existence that address the seismic problem more from a layman's standpoint, and they have a few good ideas in their about tying buildings together and about some basic kinds of things to look for, and one of the books is Peace of Mind in Earthquake Country and another is Earthquake Resistant Building Design and Construction, which is a little more technical, but still I think the lay person could look at that and get some good ideas and apply them to their building.

Linda Noson:

My name is Linda Noson and I'm a seismologist at the University of Washington. I've worked there for about eight years, during the first six of which I primarily did research analaysis data-processing type work. The last two years I've assumed a position loosely called the Washington State Seismologist. This is a university-funded position and it's been in existence for about twenty years to deal as a liaison with public agencies who request information, technical information on seismicity, private individuals, and also carry on research into current seismicity and changes in that seismicity. So in that capacity, I have been involved over the last few years discussing what is the seismic risk, what are some of the earthquake hazards in the State of Washington, both with federal government agencies and private agencies.

It's become very apparent to me, as the State Seismologist, that there's a very low level of public awareness that the Puget Sound area in particular has a very significant risk from earthquake. About every time we have a felt event, I get calls from someone from California who moved to this area to get away from earthquakes. The kinds of comments they make is, "Is this a plot of the Chamber of Commerce not to mention that this area is one of seismic risk?" The standard risk assessment for the area, for those who also may be new, is that a magnitude 7.5 is likely at 50 kilometers in depth anywhere in Western Washington, although most likely in the southern part of Puget Sound. Now to translate that into things that Mr. Kariotis said in terms of ground-shaking

intensities, that would give you about an intensity 8 or 9 where you are getting structural damage.

As a class, in both the 1949 and 1965 earthquakes that we had, those are our largest events recently, all the unreinforced masonry buildings, as a class, suffered more damage, of course, as we know, but many people don't, than other buildings. Well, with time, continually answering the same questions: 1. Yes, this is an area of seismic risk, 2. No, you don't need a fault map in the State of Washington. The few people who are aware that there is an earthquake risk know the California model for earthquakes and that earthquakes occur along surface faults that actually rupture and they don't want to be stupid and build their homes on top of a fault because they know in California, if you connect all the schools and hospitals, you'll define the San Andreas fault, and they consider themselves far more clever. Well, unfortunately, we don't have the same model to produce earthquakes in this area, so what they want to do is economically and appropriately not build on some of the faults in this area that have had no known earthquake activity associated with them.

Through time, I became more and more interested in finding ways to address this need for public information. I was approached by the Federal Emergency Management Agency to consider designing and developing a national prototype earthquake safety and education program for schools. It was thought that by having an ongoing school-based program, that that would accomplish two goals: first, protecting a particularly vulnerable population, the children; and disseminating information back into the general

community. So a year ago, I began working on that particular task. One of the staff members that I have is Carol Martins, who is in the audience, and she has been working with the school district for seven years as a volunteer because of her interest in seismic resistance codes, to get those accepted for the school buildings. Many of our school buildings are unreinforced masonry buildings. We have been working together on slightly different areas at times, but very compatible, and she's still lobbying and doing a lot of work on trying to address code issues.

As I keep hearing people say, it's one thing to let people know there's a problem, it's something else to provide an incentive to deal with that problem. The education and safety problem is not dealing with the structures. We're assuming that for whatever reason, there's no real control on the part of the people in those building to do much with the structures. That's another part of public awareness and we're dealing with right now, that given these structures, whatever they are, what's the best action the occupants can take to protect themselves.

As Mr. Kariotis pointed out, the separation of the elements cause 80-90% of the injuries in a structure, similarly, even with a perfect structure, even if it's the best you can do in the best seismic codes, which I stress we do not have here. But if you were in California where they do have seismic resistant codes for school buildings, even in those buildings, there's injury from the separation of the non-structural elements. In the recent earthquake in Morgan Hill, eleven children were hurt because of bookshelves that fell down and struck them. Again, those can be anchored. So this is part of the earthquake safety program--that

we work with the schools, we go through and ask them to do earthquake hazard hunts. I notice people start looking up and looking around the room, and that's precisely what we get these people to do. What do you have your children sitting in, what are they sitting next to, often they have lighting facilities that are on pendulum brackets that do fall and break, posing not only hazards from impact but also fire hazards. So part of the safety element is doing hazard checks, considering evacuation routes, at which time they do have to start looking at those buildings. Are those children supposed to evacuate underneath cornices? Are they evacuating down corridors that are likely to be blocked either by things that you've put in the corridors or that there's windows, glass, things that are obviously going to be down during an earthquake? So we work on their drill procedures, their response procedures. It's very important to have the education element. Why practice or prepare for something you have no idea what it is? So part of the task is to create a better image of the likelihood and causes of earthquakes in this area to facilitate that preparation.

As we were involved in doing this, we were also asked to do a presentation for the Seattle School Board, because they were considering whether or not to keep open some of their facilities. We were asked to do just a presentation on seismicity; we were not doing a persuasive presentation. We were only giving information as to what are the causes and likelihood of seismic events, because they had to deal with the issue with whether that created a risk level that was unacceptable. I very much appreciated it

when Mr. Kariotis mentioned "safe" versus "unsafe" being terms he was uncomfortable with. I feel much more comfortable with the idea of "acceptable risk." You'll find that level is going to vary depending upon your audience. If you tell parents that the risk is very small or the probability is very small but that the consequence of it happening means injury to their children, that acceptable risk for them can also be very different than it is to someone else, and it's up to them to look at what those risks are that are involved.

You also have to think in terms of, if you're going to move children from one facility to another, what are the risks of the other facility? When the School Board said, "Well, is this safe or unsafe?" I said, "What are your options? Are you moving those children into the street and educating them in front of on-coming traffic?" I mean, that's clear-cut, don't do it. Are you going to move them into an asbestos building? So there are many, many decisions that have to be made when you talk about what is the hazard in that particular building. But the primary problem is very low level of image as to what are those causes, what are the consequences of an earthquake.

We talked to the School Board which has since 1977 had stacks and volumes of reports on what are some of the problems with their schools. There have been seismic surveys done many times and they've read through this and they are not uneducated on it, but they had very little image of what it was actually saying. We have models that we work with that can demonstrate and show some of the changes to the buildings and when those were presented,

there was a difference in image for them as well, and so some things changed in their priorities.

I feel that this kind of an ongoing program, in summary, is very useful in helping people understand what the causes of the earthquakes are, what their likelihood is, and by that, what kind of preparation they need to do. Similarly, for this kind of group that you have, each audience that you want to give this kind of information to is going to be different in terms of their needs. You're going to need some kind of handbook, you need guidelines, you need information tailored to that audience. The audience shouldn't be expected to hear a whole list of information and then have the burden placed on them to separate out what is important to them or to separate out the language that they can understand when you've eiteher put it in structural engineering language and handed it to a building owner or if you put seismic information in terms of vocabulary that's incomprehensible and hand it to the School Board. Those products must be tailored to those audiences and I do see a strong need for that.

PANEL 2:
SMALL TOWN HISTORY AND SOCIOECONOMIC PERSPECTIVE

Keynote, Dave Goldsmith
Director, Jefferson County Planning Department
Michael Sullivan, Preservation Consultant,
Chronicles & Design, Bellingham
Gary Schalliol, Executive Director, Washington Trust
for Historic Preservation
Michael Leventhal, Director, Mobile Historic
Development Commission

Page Intentionally Left Blank

Dave Goldsmith:

In 1975 the National Trust of Historic Preservation came to Port Townsend and did a study of the Port Townsend area and the Water Street historic district. I'd like to read you a little piece of it and some of the findings.

Because Port Townsend expected to attract the railroad terminus and a population of about 20,000 people, the historic commercial area was overbuilt. For that period of time and for the needs of the present, we have a commercial core that was overbuilt for the population of 20,000, and it certainly is overbuilt for the current population of 6,700. The problem of vacant space in the upper floors is particularly pronounced in Port Townsend. The ratio of vacant floor space to total floor area is unusually high. Productivity or income production per square foot will be proportionately low. Restoration and rehabilitation efforts will continue to be under-capitalized, and the state's resources will continue to be wasted unless demand for space is shaped by public policy and appropriate uses are directed to floor spaces currently vacant.

That was 1975 when that study was out. Almost ten years later the same phenomena is in operation. We are in a situation that is under-capitalized. Most of the owners of the buildings are local folks, don't tend to have a lot of capital resources, but certainly have an overabundance of space, particularly on the second, third, and fourth stories--and when you're trying to advertise the costs of rehabilitation, particularly the cost of adding something structural that doesn't generate income to the

building and you can only do it over one floor of a four story building, you have a real problem.

Port Townsend was also built during the days when we had horse and buggies and had the cable car running up and down Water Street. People lived, worked, and shopped in a very confined kind of area. As we roar into the twentieth century, and we're still working getting toward the twentieth century in Port Townsend, the automobile plays a much bigger role in our society than it did at the turn of the century. But convenience to the shopper, what the shopper is looking for is not going the second and third and fourth stories of some building to do his shopping. He would rather do it in a kind of spread-out convenient situation. **Our social habits as twentieth century humans are basically of a kind of a ground floor group; we are the malls of the 1960s and 1970s.** That's the society with which Port Townsend has to compete, and it doesn't do a very good job because of the fact that we have all of these other things going on. There are, I believe, three elevators in the entire city of Port Townsend. One is a two story elevator, one is a three story elevator, and one is an industrial elevator. So to give you an idea of what we're doing with most of those upper floors, we're walking to them--if we're getting to them at all.

Another context in which small towns have to operate is the rent structure that we can afford to place on the tenants. Unlike areas where they have a lot of activity and a lot of demand for floor space, small communities tend not to have that kind of demand. Although there are a lot of activities. But the prime

demand--you'll probably see a thirty or forty cent change as you walk down Water Street on what you can get for rent per square foot. That's not much of a change when you're considering the kinds of things that need to be done to a lot of these buildings. And so the narrow range of rents that you can charge the tenants limits the amount of restoration work that can go. And again, it all goes back to what can we do to generate dollars.

The seismic provisions and the idea of doing something structurally beyond the actual bearing lodes of the port that have authority to do whatever it is your tenant's doing tend to be those things that aren't going to be looked at very carefully. And those are the kinds of things that are very difficult to advertise in the building, particularly if you only have one or two floors generating income. Those are the kinds of things that probably ought to be considered for some kind of subsidy.

The other part about small communities is the under-capitalization. As part of my preparation for this afternoon's talk, I called all the banks in Port Townsend and no bank in Port Townsend will loan money on an historic structure unless that historic structure meets current codes. So anything that goes on in Port Townsend is going to have to be outside capital or in most of our cases, sweat-equity of the owners. Most of our owners, again, are local residents who bought those buildings and over time did the things that are necessary to do to keep the buildings alive, and that's what's going on. In the larger community we have an opportunity to get after some kind of capital or in some cases the bank will carry their own payments, then they can get

into the restoration thing. In our situation, we have a very difficult time in doing that.

The last bit of social context before I turn this over to the panel deals with attitudes. We talked about that a little bit earlier today. I want to read you a quote from yesterday's Port Townsend paper. This conference hit the front page of the Port Townsend paper, at least part of the study. I want to read you a quote:

> "Port Townsend's building director, Ted Strickland, was not too concerned about the study's findings, although he said a really good quake could level a couple of buildings in town. 'These buildings have already gone through several major quakes and they have not fallen down since 1892. I doubt that anything is going to fall down at any time soon.'"

Well, that's not to berate at all Ted Strickland, he's an excellent engineer and a real good personal friend. He's very conscientious about the job he does and his duties, but I think it states the attitudes prevailing not only in small towns but in society in general. Look, we've got 50 people here, 40 people? And we're talking about pretty significant kinds of things. I was pleased to hear this morning though that buildings probably won't fall down, so I guess Ted wasn't misquoted.

But it does kind of talk about the priorities by which we deal with such things as seismic risk. **Seismic risk is not a very sexy issue. It's not a very high priority in our daily lives and we're willing to accept that risk. We're willing to do the things we need to do and have that risk always be there.** The

socioeconomic situation that any building finds itself in is really the key. Pioneer Square has taken off in the last ten years or so; before that the City of Seattle turned away from the Pioneer Square area. All of the sudden now it has a drive to it that's making it operate.

The same thing is happening in the City of Port Townsend. I used to be a Washington resident, I came to Port Townsend a lot of times during the '60s and I can recall going down Water Street in '67 and three quarters of the downtown was boarded up--there was nothing going on in the middle of the summer time. This is the height of our tourist season now, but at that point in time, there wasn't any tourist season, there wasn't any height of the tourist season.

So as we get into the kinds of things that are happening, the kinds of economics that are applying, we're able now to start dealing with, as the City of Seattle has slowly over those last 10 or 15 years, codes to deal with some of these seismic issues. We are just now beginning to be in a position where we can start looking at the seismic issues. The context kind of falls into four categories.

First of all is the economics of the situation. Can you advertise the costs? And can those large structures advertise cost over a small rent or ability to generate income? That's really important in a place like Port Townsend and other smaller communities like Ellensburg (and I can think of a number of places) where if second and third floors are utilized, they're under-utilized, and a lot of times they're not utilized.

The second is the society that we live in and the history of that community. We're starting to turn away from going out and walking around, it's certainly a convenience society now, a lot more so than it's ever been, and we'll continue to have an under-utilization of space unless we as a society can find a way to get people circulating back into that space.

Third is the return on investment. In smaller communities, again, there is a very narrow kind of a rent structure. There's only so much elasticity in rents that you're going to be able to deal with. So what happens is that while you may want to do structural renovation to the building, you will never be able to advertise it out. Also the lack of investment capital deals with the same kind of situation.

Fourth is our attitude. Port Townsend is a standing testimonial to the fact that earthquakes aren't a big deal. It's been sitting around there since 1892. In reality I think we've ignored the risk and I think that one of the purposes of the study certainly is to highlight and maybe emphasize some of those risks and to be able to do something about it. **You take all the factors and you throw in the little frontiers of an individuality that comes with living in a small town, and it's pretty easy to understand why the situation is as it is.** I think the key to this conference is going to be to bring up the awareness, to heighten the awareness, particularly in the smaller areas, and also to offer some real solutions.

I am also the Director of the Building Department in

Jefferson County and I know how we utilize the Building Code and I know what training my Building Inspector has and I also know the kinds of training the Building Inspector in Port Townsend has--and we don't have the kind of expertise, we aren't even close to having the expertise necessary to talk about some of the issues we've talked about here today. We need a way that we can administer the code and have some good alternatives for the property owner who is going to be doing it either themselves or with their buddies to fix up the building. The reality of having a structural engineer come through unless there is somebody that is capitalizing the renovation is not there. It's just not going to happen or it's going to happpen to a very limited extent.

Our panel today is entitled "Small Town History, A Social and Economic Perspective." Michael Sullivan works for Chronicles & Design in Bellingham; Gary Schalliol is from the Washington Trust for Historic Preservation out of Olympia, and Michael Leventhal, from Mobile Island, Alabama, is a Mobile Historic Development Commission member.

Michael Sullivan:

I'm with an architectural consulting firm that works specifically with historic preservation projects. Primarily we do rehabilitation of commercial buildings. We are involved with the design of rehab projects, restoration projects, private and public agencies. I'm one of those professionals who got into graduate school at a time where there were advanced degrees in historic preservation, so that was my area of study.

I was asked to discuss with you the historical context that these buildings come out of and although I think Bellingham is not exactly like all of the communities of the Pacific Northwest, I think it is an excellent example or an excellent model of a Pacific Northwest community that hasn't grown to the size of Portland or Seattle. With that in mind, I'll give you a quick shot of how these buildings came about in our community in Bellingham.

Bellingham today is about 50,000 people. It is today though collectively made up of four smaller towns that have just sort of grown around the bay. Bellingham Bay was settled in 1853 in the shadow of Mt. Baker. Some of the first newspaper articles ever written there compared it to Pompei. We had a major eruption in 1848 and an earthquake accompanying it so it's been in the minds of the people for a long time and there's never very much of a span in our early newspapers where somebody doesn't bring up the ominous thought that the mountain's going to erupt and we're all going to be drenched in ash.

Under the cloud of that thought, in 1853, some settlers arrived, that's within eight or nine months of the first settlement that became Seattle by the Denny Party. The community saw its first unreinforced brick building in 1858--one of the oldest brick buildings in the state; the building, incidentally, is still standing, for what that's worth. Between 1853 and 1858 was the time the first brick buildings were beginning to appear and about 1888 what brick we saw was primarily there for symbolic purposes. Most structures, residential structures, were

exclusively made out of wood; a few commercial buildings, a few larger buildings began to appear in brick. For the most part though, they were wood frame buildings that were simply veneered in brick. It turns out brick made a good ballast for sailing ships and so they could bring it in relatively inexpensively and slap it on the outside of a wood frame building for the purpose of making a statement about permanence.

Generally speaking in the Northwest, the first brick buildings to show up, to kind of take that a little bit further, were buildings like railroad terminals, where someone's passing through town on a train and there's this railroad terminal, so it would make a good front. Hotels, city halls, those kinds of things began to appear and eventually, financial institutions and commercial buildings in the downtown center--almost always two to three stories, usually clustered together, where there were wood frame buildings intermixed with them. They were usually boomtown facade type buildings. The sort of intellectual equivalent of a brick veneered building is the boomtown facade, which is the simple gable building with a wood frame facade going up in front to make it look bigger and grander and so on; the same idea went into the use of brick. We have buildings in Bellingham with just the front facade being brick. A lot of times, two facades on a corner building are real typical.

For the most part, the brick that was used was kiln-fired brick that came from the East Coast. I know in Port Townsend they've got problems with sun-dried brick that was produced locally, but primarily our early stuff is kiln-fired and shipped

down.

In 1889 for about an eighteen month period starting in 1889 and going into 1890, the West was just swept with a series of major fires. Within that time there were major fires in Seattle, Ellensburg, Spokane, and Denver--major, major fires that completely wiped out whole communities in many cases. That, more than anything else, eliminated wood construction in our downtowns. After that, you see almost no downtown wood frame buildings in the Northwest; certainly not in our town, and you begin to see some brick residences popping up.

You also begin to see brick being used in a more structural way. They recognized that if a fire sweeps through, the inside core of the building would still be burned, so you begin to see columns coming in, anything that seems to be a vertical sort of element that can be in brick begins to appear that way. Also, in Bellingham, just south of Bellingham, we have one of the two significant sandstone quarries in the Northwest: the Tenino quarry was one and the Chuckanaut sandstone quarry south of Bellingham was the other. The Pioneer Building in Pioneer Square and many of the buildings built in Pioneer Square after the 1889 fire used heavy masonry quarry sandstone for foundation and the ground floor and then brick up from there.

They become kind of structural elements. We have interior buttresses in some of our buildings made out of sandstone and brick so brick begins to play a more structural kind of element in the buildings in that period.

From 1890 to about 1913, everything in our communities is in

brick and masonry in terms of commercial buildings. In Bellingham and I think in many other communities, there were two major depressions during that time, so you can almost pick out three sharp building periods between 1890 to 1913 and 1914. Our first reinforced concrete building in Bellingham and one of the earliest in the State is a seven story building, Bellingham Bay Furniture Building, built in 1907. Reinforced concrete with re-bar, two inches diameter. It's a really huge thing.

By 1912, reinforced concrete was very common in Bellingham. Some of our most beautiful buildings, most notable the Bellingham National Bank Building, were built by John Graham, F. Stanley Piper, 1912. Reinforced concrete, veneer of blond brick on two sides with ornate terra cotta kind of hung on the outside of that.

Between 1918 and 1920, there's a real aesthetic shift away from brick forms, the Romanesque forms, toward the commercial forms, a lot of the cast iron fronts, the Chicago style kind of catches on, and unreinforced brick masonry buildings of the turn of the century type just aren't popular anymore. That's true through the Depression. You just don't see many of those buildings being built and by 1920, 1918, that's the end of the problem area for the people doing the study here.

Let me mention during the Depression what does happen. Because these buildings, the early turn of the century brick buildings, begin to be obsolete both in use because they don't have elevators and it's a problem even handling plumbing over three or four stories, they begin to be worked on a little bit to

modernize them in inexpensive ways. During that time, a lot of our very ornate masonry buildings begin to lose a lot of their detail.

After the Second World War, it's a disastrous time for our very ornamental brick buildings. For one thing, the streets that were at one time lined with more or less attached brick buildings begin to lose them, especially on the corners, so it's kind of akin to a mouth with teeth beginning to be missing. So that sort of strength that comes from the group begins to disappear a little bit. We also begin to see the end of ornate designs, ornamental elements on the outside.

The one memorable earthquake in Bellingham occurred in 1949 and after that was the knock-off period. The fire department went through the city with sledgehammers and scaffolding or ladders and just knocked off anything that was out hanging over--parapets, gargoyle heads, dental work, any kind of ornamental thing that hung out over the street were just banged off, down to the point where in our town, ionic columns had the scrollwork on the top of the column capitals knocked off with sledgehammers just to get them out of there. So that was a grim time. The other thing that was happening at the same time was that there was an aesthetic trend toward a streamlined kind of looking front. And this was the golden age of cheese-grater facades where they would just apply some big separate element on the outside that would completely hide the upper levels of a building and then go in and lay on some kind of a stucco substitute on the street level. Usually then stick in some glass, big windows; occasionally they

would go to the trouble of using eisen glass or some kind of an ornamental element that really changed it, but primarily it was just a cosmetic kind of shift. That really was what we came across, that was what was left of our downtown of our commercial masonry buildings, what you could see of them, as we began to approach the American Bicentennial.

As we got closer and closer to the Bicentennial, I looked to that as the one building point for the historic preservation movement in this country. There are others; there's a great deal of argument about this, but I think that's the central focus for bringing us out of the dark ages for historic preservation and into the idea that there was some merit in preserving significant architectural landmarks within our communities. A second big boost came with the tax reform act of 1981 which provided significant tax incentives for the renovation of historic buildings, and also at that period, the development of state historic preservation offices and state-administered agencies to promote historic preservation.

Quick sketch of the historical context: as a professional who deals with designing projects, I'd like to just make a couple of quick comments about this study and about my observations with the problems in this area for people interested in dealing with historic buildings.

I kind of break down existing buildings or look at them in three groups. I look at contemporary buildings as the first group; in my mind, there's really no reason, no excuse for those

buildings not meeting the highest standards in the area of risk, seismic risk, or anything else. It seems to me they don't really have a good excuse for not meeting the highest standards, taking advantage of the state-of-the-art knowledge in this area in their design. There are obsolete buildings which probably start at about buildings that are maybe five or six years old all the way back to the earliest buildings around, and those are buildings that have no real merit beyond the fact that for some reason, for one reason or another, they're still providing income and appreciation to their owners and they're finding economic viability today and so they're still there, and that's the only reason they're there. And then finally, I guess I look at the last group as sort of extraordinary survivors. Buildings that have more than just an economic reason for being. They're still providing a service to society as landmarks, as textbooks for our culture, for our history.

It seems to me that in doing a study, these two last groups kind of run parallel but there is a bias towards those buildings, if you look 90% of the buildings studied here are listed on the National Register of Historic Places. I assume that's because the people doing the study found a certain importance in those buildings as well rather than just that they are visible or newsworthy or anything else. I think they probably realize that too. And those are the buildings which I deal with, so they're the ones I feel most comfortable talking about. Many of those buildings do have problems with things like parapets and exterior ornamentation. From my perspective, significant historic

buildings are big problems. Stabilizing those, tying in walls, reinforcing them, is something that almost comes automatic, something I genuinely believe is given consideration and done. Our problem usually comes along where we've got an ornamental parapet or some kind of an overhang that we know is there from photographs and it's really difficult to reconstruct that element. We're working within government guidelines in order to qualify for tax credits which usually makes projects pencil out--and there are options that just aren't left open to us. One building that we worked on recently had ornamental cornices made out of styrofoam and believe it or not--the building suffers visually by not being able to have those elements. The cornices had been knocked off during the 40s and the 50s but just being able to visually put those elements back contributes immensely to the purpose for that building being there as a landmark. Currently, lightweight elements like that are just not allowable, regardless of the creative people who made teflon teeth for the walrus on the Alaska Building. Primarily, those kinds of creative options aren't left open to us.

I think the main, central thing in talking to a client or to someone who's going to look at rehabing a historic building today, before we ever get to talking about the concerns structurally with regard to earthquakes or anything else, you have to remember that today for most people who are going to get into a rehab of a historic building in a smaller community (I'm not talking about Seattle but in a smaller community) their financial risks are so great that the question of whether or not the

building is going to get struck down by an earthquake is not even a factor in their consideration. They are so close to the edge in terms of being able to make that building pay for itself and be economically viable that it's difficult, it's particularly difficult when you're talking about consulting fees, maybe ten or fifteen or twenty percent of the project costs. That's the central issue for a developer, for someone looking into it in a smaller community today.

Right now what we usually end up working with with a client is interpreting not only the guidelines for the rehabilitation of the building as a historic building so that it can qualify for the investment tax credits, but basically questions like what are the existing local codes, what are the codes that we have to meet, and again, what can we cut out of that area of the budget and make it work. There's really no technical assistance in most smaller communities in that area at all and the building codes simply don't address it right now. So it's an area that when the budget cutting comes, suffers.

In closing, I would add that the federal guidelines, which now provide the only incentive for renovation of historic buildings at this point work contrary to a lot of the things I think a lot of you feel should be done, as engineers or as people who are concerned about the effects of earthquakes, with these older buildings. I can show you projects I've been working on where we've got three or four pages of technical directions on how to deal with the cleaning of terra cotta and no concern whatsoever with how that terra cotta is attached to the structure. We're

saving pediments, fixing them up in such a way that they're going to be able to survive for three and four hundred years in their existing place and paying no attention at all as to whether or not a windstorm is going to blow them down into a thousand pieces three days from the time we finish the project. So the guidelines and the incentives that provide for the renovation of historic buildings don't address the area of engineering at all, really, or to a very small degree. Thank you.

Gary Schalliol:

My name is Gary Schalliol. I'm the Executive Director of the Washington Trust for Historic Preservation, which is a state-wide nonprofit membership organization. We are involved in a program called Main Street at the moment. It is a program that I think really does affect the socioeconomics of small communities that in fact have these historic buildings in them. Main Street in fact is a program that builds on the building and the people resources of each one of these small communities which has applied. So I'm here today I guess, a little chagrined, having just a few weeks ago looked at a slide of beautiful masonry buildings that attracted our attention that made the towns look very attractvie that we selectd to participate in the Main Street program but now we find in fact are in perhaps a major problem that they have to deal with and not just an asset.

I have to paraphrase too, as you can expect, given the job that I do, Will Rogers in that "I really have never met an old

building I didn't like." I see many values in the old structures and in fact someone said earlier on that he didn't think most structural engineers liked old buildings but we've employed structural engineers, not employed but actually gotten them to volunteer their time to work to save historic old buildings so I'm sure that there's great diversity in the field. Historic structures in fact have a number of different kinds of values.

One is just the value they have in terms of heritage resources. I don't think that can be really ignored. Main Street is a program that stresses economics; in fact when we developed our program guidelines, we were criticized by one person in one community who said, "Well, you left out community pride." Main Street's a program that reminds people their heritage is important, that their buildings are a key part of that heritage, and in fact they're things that the community can have pride in. In one of the meetings that we held in Centralia, we had about 150 people supporting the Main Street program and attending this meeting and over and over again we heard people saying that this Main Street program was going to be a great program and even people who didn't have any particular interest in the downtown any longer were prepared to put up money to help pay for the program and bring it to their community because they had pride in their downtown and those old buildings.

As I said, Main Street stresses the economics of the downtown. Preservationists have for a long time looked at buildings as heritage resources but in the last decade have more and more looked at them as real estate, as places that are usable

space, that help to provide jobs, that are taxable, resources that can help to support the community, that can be tourist attractions, and we believe that's another important value of these older buildings.

With that sort of preface, let me go on to what the Main Street program is. As I said, it's a program that builds on the people and building resources of the communities in which it's being applied. The National Trust for Historic Preservation, which is the national equivalent of our organization, in 1977, was trying to cope with problems other than seismic problems when it initially developed the program in the Midwest where there aren't a whole lot of seismic difficulties. But there are other difficulties: urban renewal funds that were used to demolish blocks and blocks of buildings in smaller communities, problems with neglect, lack of investment, buildings demolished to create parking spaces. The Main Street program was developed to try to protect those buildings by looking at them again as real estate.

Three communities were selected to initially attempt Main Street revitalization: Hot Springs, South Dakota; Yalesburg, Illinois; and Madison, Indiana. Each one of these three communitites hired a full-time person to do the same sorts of things that a mall manager does: to work with community leaders, to see that the people who were interested in the downtown were well-organized, to coordinate joint promotions of the downtown as a place to shop, to assist with the way the downtown looked in terms of the design of the buildings, the design of new construction, what was happening to the streets, what was

happening in the store windows, and to work in the area of basic economic restructuring, trying to find new businesses to locate in the downtown area, if there were in fact vacancies, and trying to deal with that tough problem that already has been alluded to, finding uses for second, third and fourth stories where maybe they haven't been used for decade. The program that developed then was in fact one that looked at all four of these areas: organization, promotion, design, and economic restructuring. It was a program that lasted for three years in each one of these initial pilot towns where it was tried. After these three years of experiment, the results, the report that came out of it, indicated that this was a very good way to get economic revitalization rolling in small communities and that in many communities where they were competing with malls, it made sense to take a sheet out of the notebook of the mall managment guides and apply some of the same techniques and ideas to the downtown.

In 1980, the program went national and a Main Street center was established in Washington, D.C., again, within the National Trust for Historic Preservation offices. There were six states selected to apply to the program and each one of the six states would have five communities in it as demonstration towns or models to show what could be done. Unfortunately, Washington wasn't selected to be one of those six states. A couple of years went by, there was some interest in the Main Street program.

Finally in 1983, the Washington State Downtown Association and the Washington Trust for Historic Preservation worked together to get a fullblown Main Street program going here in Washington

State. One of the things that we did was to go to the Legislature to present this program as one that would do those things that I mentioned before that historic buildings can do: strengthen local tax base, as they're rehabed they provide jobs, it's usable space, they can promote tourism. The Legislature probably also had in the back of their minds that it's probably a good way to begin to celebrate the Centennial coming up here in Washington State. Anyway, in the last fifteen seconds of the last legislative session, $90,000 was set aside to help fund this Washington State Main Street program. So at that point, we realized we would be able to go ahead and start a program here in Washington State, to apply some of the very successful techniques that had been applied in other states around the nation.

We have now actually selected five towns to be Main Street towns here in Washington State: Port Townsend, Olympia, Centralia, Longview, and Pullman. We will be hiring project managers in those communities. They will be initiated as three-year programs, and I'm sure we're going to be getting results as they have in the other Main Street programs, where a Main Street type program has led to the investment of millions of dollars in the downtown, both in terms of rehab and new construction. It has created or attracted new business in the downtown area. It's led to a lot of reuse of second and third stories. It's strengthened the local tax base. And in fact the tourism is up in the communities that have tourism potential. This is a program that probably most importantly gets people to put their money back downtown. Obviously, this report points out that lack of

maintenance in many cases over the years, the economics are not necessarily there. Main Street is sort of an opportunity for everybody to kind of jump forward together all at once. A person who would say well I'm going to do my building, I'm going to be the first in town to do this building and put some significant dollars back in the downtown, probably if he's all alone, would be doing something fairly foolish. But if there is the sense that the whole community's behind this, there's going to be a full-time staff person working to see revitalization of the downtown, then maybe the economics will change and Main Street in fact has proven itself effective in doing that. It's attracted millions of dollars in private money in the downtown. Mark Twain has said, "Thank god, we don't get all the government we paid for." Maybe he had something of a point and I think it's worth using that quote to remind ourselves that private people can actually still do things and Main Street's a vehicle, almost as a sort of exercise in cheerleading, as you might say, to get those private dollars out of stock market, out of bond, and get them back into buildings like the ones that we've seen pictured here today.

If I can just close with a little commercial. There are six organizations working together to do this project : two state agencies and four organizations and thus far we haven't had any falling outs. The Washington Trust, obviously, is involved, the Washington State Downtown Association, the Association of Washington Cities, the Washington Chamber of Commerce Executives, the Department of Community Development, which administers the $90,000 state money, and the Office of Archaeology and Historic

Preservation, which has promised $90,000 to the program over the next three years. Obviously, we're very interested in this report. We want to see those buildings that sort of help sell the towns as demonstration towns remain standing and not be demolished because of the fear of an earthquake or through an earthquake itself. We have the assistance of the National Main Street Center staff and one of the things that they do and do under contract with us is provide specialists in areas of special problems, and obviously today's conference has pointed out one of the special problems that unfortunately we find that we have.

Michael Leventhal:

Mobile is not in any of the earthquake zones known in the United States; however, since 1979, we have had probably the most severe property-related hurricane, Hurricane Frederick, we've had two "one hundred year floods," which show the probability of these things coming around, we've had occasional tornadoes, and according to my wife who is from Minnesota, we will probably be seeing the return of locusts and the killing of the firstborn in the next couple years. The regional problem we have is getting people to stay.

From my perspective as one of two of the advisors from Alabama for the National Trust for Historic Preservation (we travel around a lot at least within the southeast region), the most important thing about historic preservation, at least in our region, and the reason why we've had preservation is the importance of regional facade.

In our buildings, predominantly the buildings before the invasion of Yankees and other tourists, you can see the buildings, that they are raised, that there are high ceilings, that the rhythm is basically large voids to the solids, we have a lot of heat, we have to somehow get rid of that, and you can see in all of the national styles in the southeast region, regional adaptation of them. You don't see the bungalows in New England with the cute little seventeen rooms. We have three rooms and that's it--and seventeen foot ceilings, which doesn't help when we try to air condition them, a separate problem. But the reason I was asked to be here is that we are dealing with historic building codes and natural hazards, and earthquakes and the problems that you have and the hurricanes and winds that we have are basically the same.

Historic preservation is first off a source of pride, as it was already talked about, and tourism dollars. The wonderful women from Natchez survive on tourism. There are about eight houses, they're open each year during the pilgrimage, the last two weeks, and these little old ladies make between $15-25,000 a year, solely on two weeks worth of visitation, so there's a lot of money going on. The problem that we deal with when we look at preservation--well, there are two things to look at.

First is what I call four stages of preservation. The first is using homes as homes, rediscovering the downtown homes, the homes that make what your city what it looks like. In Mobile, we have nothing of the French, none of the Spanish, none of the English architecture left, that was all destroyed in fires of 1839, but we do have all the American styles from that period on

and from the beginning of the city, at least from 1839 and all the way up to 1940, you can still, if you live in a home downtown live in what is both romantically and visually Mobile, and when you pass a certain area of our city where you start getting slat construction, it's like living in Cleveland, for all the differences that it makes. The regional architecture breaks down; it's now national architecture. So there's a sense that you are living in something that's important. So the first stage of course is re-identifying and living in the homes. It's not a great quantum leap of thought since most of the professionals can afford it, doctors, lawyers, etc., that they then take an old home and make it their office. It's still user-occupied, though it may be adaptive use. The third stage is what we're all experiencing now, which is preservation as development, where people are using it as speculative development, they're not using it for their own offices, they're selling office space. The fourth stage, which will hopefully come eventually, is basically the concept of change management. Looking at the resources around you, whether they are historic or not historic, and recognizing that they have value and just incorporating them in the landscape and using them.

In '66 with the Historic Preservation Act, besides the establishing of the National Register, you have an expansion of the register concept into the series of districts. When you follow preservation along that, you get to '76 with the first tax act, which allowed for ten percent tax investment credit, a five year amateurization, an economic recovery act of '81 with the big

tax write-offs. You've sort of gone from the concept of the house museum to historic development, and you're no longer dealing with the old ladies in the tennis shoes in the Junior League and all the nice people who would like to save Mr. So and So's house because he was the most historic man in town, but you're now dealing with vast areas, and by doing that, you've caused two problems.

First off, historic preservation is, unfortunately, academically oriented, it's conceptual in talking about historic styles and look at this corner slide and look at this and look at that, and it's real hard. Most folks can understand saving Mt. Vernon; they don't have a lot of sympathy with you when you talk about Jim Bob's Feed and Drugstore, which is a 1904 commercial building, because it's something they can relate to, they witnessed it, buying feed for their dogs, buy their drugs down there (that's the old type of drugs--you can probably still buy new types there, but I don't know anything about that) and it's kind of hard to sell building officials on the idea of buildings that they grew up with too.

The second problem you have is that you've attracted developers. They're very nice folk, but their view of the building as historic is viewed in economic terms solely, and although they may say that they're doing it because they romance about all the wonderful things that it engenders, how beautiful the lives of the building are, what it does, it also puts dollars in their pocket. I don't know anyone who's so philanthropic that they just go on downtown and restore buildings and not care if

it's a profit or not, it doesn't make any difference to them. They're all trying to do it. And when you get developers, you're also getting people who are just looking at the bottom line, and because of that, they look at the journals, and they all want their buildings to look chic and passably safe. They're not really into the idea that it has to meet all of the codes, and here's where we have some problems, because we're dealing with the historic codes as we have them today, at least in uniform building codes, which says that if you have a historic building, you can do trade-offs.

Bubba Jones, who is the building official in Mobile, is very, very sympathetic to our needs and wants and desires, but even he has a hard time and is hard-pressed, because the codes and the experiences that we've had at least in the last six years are very hard to put together. Hurricane standards in this country basically deal with wind factors of 120 miles per hour. Our storm had winds from 140-160. The FEMA people, who are just real nice, to a degree, do they come to your town where you've had a disaster? They love to come when there's nothing wrong with your town, they can go to the bars, they can drink, they can eat at all the places. When they came to Mobile, we had 89% of all our power lines down, we had no power for two weeks, at least those that did get power in two weeks, some of the places didn't get it for one year. There was no alcohol and there was no ice, which was one of the biggest problems, not having any alcohol. And they came down and they wanted to get out right away because there was nothing for them to do. They were living in our auditorium. They viewed

all of our actions and all of our problems from the ground. It took a lot of needling them to go into the buildings and look at if from the roof. We thought it was interesting how they were doing their study. But the problem that you get with this is that we ended up with such things as, because of federal flood insurance, we went from a nine foot above sea level requirement to twenty-one feet. We have, in Alabama, the shortest shoreline, and so FEMA and the flood insurance people thought they could ram that down our throats. If you had a commercial building that had to go twenty-one feet off the ground, your ramp system would be incredible. There is one on our causeway, it's a series of four loopbacks. I always feel that the people who are in wheelchairs either have forearms as big as my leg and god help them if they ever let go, off they go. We finally got FEMA to come down to seventeen feet and hope we can get them down to just to slightly smaller.

The problem that we have in small towns is that you look for help and you look for guidelines, and of course, for those who like subscriptions and all of that, there's APT, Association for Preservation Technology. These are the science folks for preservation. They have all the knowledge about all the new epoxies you can use and why they work and why they don't work. The National Trust for Historic Preservation has little information sheets. Your state's SHPO office is a good source to get some of this information. Your architecture review boards will only care about facades in general, don't really talk about anything that's structural, and then you have the Park Service.

Now, the Park Service controls what you do if you want to take a tax act. First off, let me say that the leaflets do educate, if you get people to read them. When you have a problem and you write to somebody and you're like me and you're looking for an answer and they send you a generalized information sheet, all of which you already knew and most of it dealing with areas that aren't in your concern, you get turned off real fast. Everybody would like somebody to come into their town and say, "Sure, here's the problem and here's the answer." It just doesn't happen. The problem with the Park Service, and I'm not real fans of theirs, is they have nine rules of life. It's almost the Bible. Because if you don't follow these nine rules, you don't get tax credits; if you don't get tax credits, you're not going to do the building.

Rule Number One (I'm not going to read all nine, I just wanted to read four that really have anything to do with what we're talking about) is that "every reasonable effort should be made to provide a compatible use of a property which requires minimal alteration of the structure or the site." So if you do have a user and you have to reassign space in the building that's going to cause damage to some of the historic fabric, the Park Service can tell you, "We don't think that's a nice use, that's not compatible with the building." You try to argue, "This is the only tenant I've got," and they say, "No matter."

Second is "the distinguishing original quality or character of a structure or site should not be destroyed. The removal or alteration of any historic material or distinctive feature should

be avoided." So if you're talking about taking off the cornice, you've already lost the tax credit. There is no option to do seven out of ten or three out of five; you are required to do all nine.

Number Five is "distinctive stylistic features or examples of skilled craftsmanship which characterize the building shall be treated with sensitivity." One of my favorite words. My sensitivity and their sensitivity have always been different, and they have, I guess, more sensitivity, because they have more power. I think that's how it works.

Number Six, "deteriorating architectural features should be be repaired rather than replaced whenever possible." What you end up with is the people who are going to control the economics of your tax act, the Department of the Interior, telling both you and the developer and the building officials that if it isn't done the way "we" like it, then "we" don't care what you do with the building, because you're not going to get a tax credit. Now that means they don't care whether the building comes down, they don't care whether the building is done under another system, but if you want the tax credit, you're not going to get it. You have to go by these rules. For most of the people who are looking at the tax credit, that's the only way the building will survive. And the problem that we have, the thing that I see as the most important thing, is that preservationists cannot stand to have this use that we talk about being the last use of the building, because we can't afford to have people saying, "We tried that and it didn't work." Or we can't afford conversely, to relax the rules so much that

cornices come down, public outcry is, "Those buildings have to come down in toto." So you end up between a rock and a hard place.

Last month in Selma, Alabama, we had a state-wide conference on architecture review boards and how we can help one another and I was asked how do we go about it in Mobile, being the second largest city in the state (we have 200,000 in our count--shows you how big we are). How do we go about helping various people who come up with design problems? We say, "Real easy. We have a free design clinic." Our free design clinic employs graduates, gives them experience dealing with clients, gives them experience in handling problems. Gwen Turner from Demopolis stood up and said that's very nice we do that in Mobile. In Maringo County, and in the surrounding counties around here, Clark, Washington, there's not an architect registered, employed, living in these regions. And it's very hard to realize that in the hinterland--you think I'm in the hinterland--we have folks farther back than I live who have no one to go to. They don't even know about dealing with any of the things that we've discussed, because they don't have the literature coming to them, and if the literature was there, there's no one there to do it. It's one thing to find out all the great scientific things you can do from APT, but if all your masons just been doing it because that's the way Daddy did it and wouldn't know chemistry other than as a spelling word, you're in a serious problem.

Again, our problems are slightly different. We've had several interesting comments today about water problems. We have

water being driven into our buildings at about 140 miles an hour during a hurricane. We've had water damage to our studs because it just was pushed through. And you don't notice these problems until about two years later, once the initial surprise comes through and you find out that you haven't lost too many things. I just lost a chimney; I did get my neighbor's, but not exactly in the same shape and condition. But I ended up having water damage inside my house and you can see water spots on the plaster walls in the middle or down below and you could sort of try to trace it and you knew it wasn't seeping in some place and then finding a point and if you went on the outside and started really trying to investigate, you would realize it's been pushed through at a rapid rate. Looking at the slides that we saw, I can't imagine if you had the kinds of winds that we're talking about what would happen to the buildings. You're talking about just a general wind. It would be just frightful to see what would happen.

The second thing that I find interesting--in new buildings, in Houston where they had a hurricane just recently, they found that windows were popping out all over the downtown area and they assumed after the first day of checking the rubble that it was from flying debris. What they ended up finding out was that there was a new wind tunnel effect caused by each new building being placed. Again, people talk about the code being very important and it is, but the code still is the lowest common denominator that they allow. It's not the highest standard; it's the lowest standard that they say is okay, which sort of always frightens me because people say, "This is code-tested" and that's

not always the thing that I want to hear. But they've had problems in Houston and how do you figure out a code if with each new building creation there are new kinds of problems? Does this mean each building that's built in Houston now has to go through a test based on the new wind factor? That means you'd be changing the code with each new building and it would depend who built first and how fast they built it what you end up with. So I think the problem that we discussed is much more complicated and when it deals with historic buildings, we're in a real mess, because again, it's important that we get something done in which the last use isn't this use.

Page Intentionally Left Blank

PANEL 3:
THE PROCESS AND ECONOMICS OF REHABILITATION: AN OWNER'S PERSPECTIVE

Keynote, Robert Brenlin
Vice Chairman, Northwest Institute for Historic Preservation
Donna Wright, McMinnville
William Keefer, Vancouver
Bob Morris, Port Townsend
Larry Nickel, Ellensburg
Arletta Gould, Port Townsend

Page Intentionally Left Blank

Robert Brenlin:

I think today we've seen a lot concerning the bad condition these buildings are presently in, but we haven't really found out what these small towns are like. In this last panel, we have some owners from the small towns and hopefully we can get a better idea what makes a small town unique and different from Seattle, because I don't think it's been made clear why these small towns have the particular problems they do.

I think Dave Goldsmith hit upon it a little about how obviously the economy in these towns has a lot to do with how they can capitalize their buildings and how much money they've included to actually rehab them.

The study team went to seven towns and the people in those towns were really receptive to what we were doing. They allowed us to tour their buildings; they talked to us about their problems; they talked to us about the money they had spent on the buildings. They were really open about it and we appreciated that because it gave us a lot of good information.

They knew that there were problems with their buildings but they wanted to talk about them and they wanted to learn more about the whole process of rehabbing buildings; they wanted to learn how these buildings were built; and they wanted to learn what they could do about some of the problems that they realized existed.

Each of the towns had several different kinds of owners which affected the process of rehabilitation and the application of seismic codes. We had owners that had owned the building since it was built, whose family had owned the building for maybe 100

years. In some cases, they had spent a lot of money in maintaining that building; other owners had not.

There were some things that we could generalize about these buildings as far as ownership and the relationship to the application of codes and the condition of the buildings but we could not really specify in every instance why the problems in these buildings existed or how economics or ownership had caused the conditions to exist. We surveyed buildings owned by public agencies such as a historic society. In some instances, this meant there was a budget to maintain these properties and in many cases there was a better record of some of the historical societies maintaining their buildings because they had a fixed budget that they could work with every year. We looked at several buildings owned by the YWCA or YMCA in these towns; they also had a budget to maintain their building. Public ownership did increase the maintenance of the building.

In other towns, we found a considerable amount of change in ownership. One owner might own the building for two years but sell it when the difficulties of rehabilitation became obvious. Sometimes there was a value that was created just because it was historic. We found often times when we looked at the building that there were so many structural problems that the building was overvalued and that the costs of stabilizing the building were not included in the sale of the building. We surveyed buildings that had transferred quite frequently in some towns, and then we found buildings where an owner had actually owned the building for several years and put a lot of money into it. If the owner had

his or her business in the building and the business was doing well, then the owner was able to spend more money on maintaining, upkeeping, and rehabbing. We found a lot of different ownership positions and this often could affect the conditions of the buildings even though we couldn't generalize about why a certain owner had done one thing and another had done something different

I'd like to make another observation about these small towns. I think everybody loves going to small towns. But to actually own a building in one is a lot different, there's a real love/hate relationship. I think these owners don't necessarily love these buildings like all the tourists do that come to visit them. They said to us, "You know, well, if we have to do all of this structural work because of the condition of the building, we might as well sell it." The work and headaches can just be too much year after year and you can lose the love you once had for the building. Now we're telling them they have these structural problems, it's now even worse for them, what do they do? They are looking for help and they are looking for some more knowledge about things. They knew a lot about their building, but they didn't know what to do. In many cases, there wasn't the knowledge in the communities, there wasn't the structural engineering knowledge, there wasn't architectural knowledge, there was expertise missing there that would have helped these owners get by.

The other thing that we found is that these historic districts where you find unreinforced masonry buildings experience a lot of competition from the commercial arterials outside the old

core. This had a lot to do with whether these buildings were maintained and whether you could put a business in there that would make money. You have the chain stores, you have the Albertson's and the Fred Meyers' and those kind out on the arterial and the historic core often times was neglected by the people of the community. It happens in some towns, that the competition with these older buildings can reduce their economic stability.

People like to visit the old towns and the old buildings, but for the people that own them, it's not as glamorous. I think they like them but they know they may not be able to keep the building, They may have to sell it, they may not have the money to fix it up. This panel will be able to address a little of that, and we'd like to have a real discussion period afterwards. The panelists have a lot of knowledge, they know a lot about the small towns, I think this is the panel where you can find out why certain things occur in small towns that don't occur necessarily in cities like Seattle, and I don't think this information has been taken advantage of yet, so if you could ask questions and try to bring some information out of these people, it would be valuable.

Donna Wright:

Good afternoon. After today, I really have more of a total awareness of our buildings--and I think it's added one more stress probably to an already stressful life. I feel like maybe I should run home and start taking better care of the building immediately. When I married my husband, I did not realize I'd

also be inheriting a building that was built in 1893--you speak of love-hate relationships! We inherited the building after his family had passed away. It was built by his grandfather. At that time it was a very viable building, it was Miller's Department Stores' first building and their first business in the state of Oregon and it was also a central heating plant, so that the whole building--it has two stories--it was all operating and rented and leased. As far as the income, it was there.

Then in 1963, the heating plant (it was one of the longest and oldest in Oregon, privately owned, and it heated nine blocks) when the mills had gone out, wasn't a business any longer and Miller's sold their business to someone else and so the rent stopped. We had a much more minimal rent so we had to do something. We started working harder and we knew about leaking roofs from above, we knew about flooding basements from below, and our problems grew. My husband's sister went to work to help support her buildings, she went back to teaching school, and that is how I got involved in the business and in the building. We've heard all these exciting things and we'd love to preserve our building, we want to put the money back. **But the minute you mention structural engineers or architects, it's sort of like mentioning attorneys and doctors because immediately we see dollar signs and we panic.** We're the ones who are going to say to you, "How much is it going to cost? How little can we possibly spend to get by? Where are we going to get the money?" All of you want money for your services, but this is our predicament. So once again, we work harder.

I jotted down some notes on everything that's been said about buildings and businesses and where the money comes from, etc. and I put down what we really feel are the top ingredients to keeping our building alive and viable and looking attractive and not deteriorating. We do rent other buildings and we charge our rent accordingly because we like to see the town filled with tenants because there's nothing worse in a small town than to see empty buildings. So lots of times we'll rent that building and we'll put it at the minimal dollar to keep it rented and hope that that business will get on its feet and make a go of it. I put it as my priority to keep that building strong and attractive--as a tenant, and I am my husband's tenant, so that's why it gets top priority. Anyway, with the tenant, if that tenant can keep a strong, vital business going and create dollars, then that building is successful because then the tenant can afford to pay the rent and the building owner doesn't have to fear that overnight the tenant won't be there and then what will he do? So with the tenant we do everything we can to create an active, strong business. We sell merchandise, clothes, we have foods, we have a beauty parlor down below, we've broken the building as a small specialty store. We watch what our competition's doing and if it looks prosperous, we go for it.

We were not into retail or buildings originally, but we went around trying to get ideas twelve years ago because we knew we would either end up losing it or it would have to be a success. We went to one town in Washington and saw a building that was everything we wanted ours to be. It was beautiful. It had no

leaky roofs. What they spent on just their outside awning, we had to spend on the total remodeling of our building. So we were eating our hearts out, knowing they had a full basement, an excellent heating system, new carpeting, everything--and they had janitors--that was the ultimate! Anyway, we went back and visited over the years because our daughter lives in this community--and we watched that business close its doors. With all the beauty of the building, it still didn't make it--because the janitor was nicer to us than the people in the store. The owner had all the wisdom but he couldn't quite put it to work. You know it takes lots of enthusiasm, energy, and creativity to make something go, and evidently something was lacking, because he had it all.

Moving on now, from that being on the top of my list as a tenant, is our location. We are lucky to be located, with a building built in 1893--the town could have gone in any direction--but we have banks on three corners and we have adjacent Penney's store and this really gives us extra help, being in this spot--and that was purely luck, I'm sure.

The third thing on our list is parking, and once again, the property owners and the city worked together and we have parking behind our store. We have other business property without the parking. Without parking, we could not, in this building, be as viable as we are.

The fourth thing on my list that I put down was the visual attractiveness of our building. When we first opened, we had $25,000-30,000 to put into our building and get it going and that's not much money for a two story building that needs lots of

things. We ended up putting on awnings and painting the building; inside, we put some new floors down (parquet wooden floors), we chipped the stucco away from the brick so we have a natural brick wall, we put in some carpeting--and we tried to do it as attractively as we could with minimal dollars.

We are always open to any ideas, especially ideas about where the money comes from would help because at times we panic when one more thing needs to be done in our building and in our area. We're competing with Washington Square, the major shopping malls in Oregon (we're an hour from Portland) and it is hard to stay in business and keep your buildings going. Really, our thoughts night and day are what will we do and what will need repairing tomorrow. Thank you.

William Keefer:

I'll play the devil's advocate today (as an architect) and represent the owner of the building (pictured back there on the fourth board) and I'll describe what we did to it and then we'll have a question and answer period.

The building appears from the outside to be a four story building; it's actually got a daylight basement so it has five usable floors. It's a building that was originally built as a building with a basement and two stories on a corner lot that was about 50 x 100 with a 50 x 50 building on it or thereabouts; it was a bank building. Somewhere along the line, somebody added down the block to it and over the top of it and turned it into an apartment house. So we discovered when we went to look at it that

it was originally a commercial building and then converted to an apartment house; now they're going to convert it back into offices.

I don't know how to preface this without getting somebody angry at me. **What every project needs to get going is a purpose. Just the fact that the old building is there and getting deteriorated isn't enough incentive to make you fix it up.** Sitting in the audience today is the city building director of the Planning Department and the Building Department of the City of Vancouver, and thanks to his condemnation of the building, we got to go to work on it.

The other thing that I must preface so that you people don't get too nervous about what we did to it, the person who bought the building and rehabilitated it was a banker. **Every project also needs some little edge, to make it a little different or a little better.** Well, bankers don't pay interest on the money they use. I'll tell you right now where the money came from and how it happened, and then I'll show you what we did to it.

The simplest way to investigate a structure to see what has to be done to it is to open it up and take a look at it. So I convinced the owner to thoroughly gut the building first, before we did the total structural investigation. That really helps in the case of a building that's been empty for a few years when nobody's using it--rather than make a lot of guesswork and fiddle things out, we just gutted the building and we learned a lot about it that way.

Bob Morris:

About 70% of the downtown buildings were condemned in Santa Rosa at the time I'm speaking of; Santa Rosa had gotten also a lot of new urban renewal money, so there was a big urban renewal sweep through town and they were dumping things pretty fast. I recall in my neighborhood there was a man with a Caterpillar and for $100 he would knock your house down. He had a pretty good business going around town.

I took special notice of one big Victorian building in town. It was a beautiful house and it was on a main street with a big traffic count and I just knew it was going to be a good place for an office building. One Sunday morning I was going by it and the realtor was just picking up the keys from the owner. The owner lived out of town and he was real interested in getting rid of it. So I walked through the place and thought what a great place it was and I talked to the owner and he said well let's have a cup of coffee and so he took me to Sambo's and said well if you give me $500 down, you can buy it. I thought what a great idea. For some reason, we made the deal on the back of a napkin and I wrote down that I wouldn't have to make him another monthly payment until I got a use permit, and I don't know why I did it but he said well Monday you can go down and get one--well, it took us two years to get a use permit because at that time, they wanted a new earthquake code structure brought in. This was about the first building in town that was going to happen to. They really didn't know what they wanted to do with it.

In the meantime, I had applied for an historical permit. I

wanted the building registered as a historical building, and as that developed, the city suddenly decided they had a delicate piece of property on their hands and they weren't going to just shove this earthquake code on it. They kept debating how to handle it, trying to decide what to do. I told them that I didn't have any money and that if they wanted to push it hard, I'd probably just knock it down and put a gas station up, and so they were pretty sensitive with the code. I feel that once it became an historical property, the city officials really went way out of their way to help us and they revised the code a lot too.

Some of the things that they wanted us to do which I felt at the time were unfair and were going to hurt the property was that we had to do vertical shear walls and horizontal shear walls through three floors, which meant taking all the baseboards off, and it had curved ceilings, wraparound walls and they wanted those to be tied in on all the walls, which meant we had to dismantle the inside of the house carefully, put up all the walls and then put the thing back together. We had to put plywood on all of the floors in the same way, even in the attic, we had to tie the building, which was a wood structure building, we had to tie it to the foundation. After we finished rehabilitating the building to meet the new earthquake code, the structural engineer said it was probably one of the tightest buildings in town but it was probably one of the worst things we could have done for an earthquake because before it just sort of rolled with it and now it was so tight it would probably just dump it into the street. But anyway, we accomplished and they accomplished what was to be the new earthquake standards in Santa Rosa.

We spent about $10,000, which seemed at the time like it was a waste of money because nobody's going to come into this commercial property just because it's been rehabed with earthquake code, but I noticed that when I got ready to sell the building, with everybody who came around to look at the building, it was one of the first things they wanted to know--whether it was brought up to code. This meant that the whole California real estate thing is just based on a different set of aesthetics--their financial statement, whereas, say in Port Townsend, who cares if it's brought up to code--but in California that's the way of life. Maybe someday that's the way it will be up here. For me, it was just an experience in development; I had no intention of becoming a developer when I got started in the thing, I will probably never become one again, but that was just my experience with restoring an old building.

I really feel that in Port Townsend especially that, as it was mentioned before, it's a different set of economics over there and I don't know if it could survive that sort of rehabilitation, whereas in California, I had the building filled before I even opened the front door, and there was never a problem filling every square inch of that property, but in Port Townsend, with these second and third floors, I don't know if you could ever do it.

Larry Nickel:

As an elected official, I imagine you'll expect me to talk out of both sides of my mouth, and I probably will today. I'm caught in the middle of a very interesting subject, and it came

home to me realistically when I got a call from a local newspaper reporter that said, "I just saw in the P-I and over the AP wire that Ellensburg's buildings are going to fall down and you're the mayor, what are you doing to do about it?" Well, I said, "Gee guys, I haven't read the report, I can't make a comment," and he said, "Well who do I talk to?" and I said, "I know Bob's over there and if you give me a few minutes, I'll find his phone number for you," and between the time I gave him the phone number, I called Bob myself and said, "Gee, Bob, what's going on? Do we have a problem?" Well, I'm here today to refute, categorically, that Ellensburg's buildings will fall down in a windstorm. Those of you who know anything about Ellensburg at all know that we have wind there; we don't have that problem. The other things, we may have.

Kind of as a perspective--I am an historian and I do run a museum in an historic building in an historic district and I'm charged by state law with upholding the health and safety codes for the citizens of Ellensburg. I have a personal problem now. I also own one or two historic structures in the city of Ellensburg that were part of the study. My family also owns one or two historic structures in the city of Ellensburg that were part of the study.

The majority of the buildings in Ellensburg were built in 1889. They're cast iron and masonry construction. The city was built on speculation as a rail head and a possible state capitol. We list our population for revenue-sharing purposes at 11,500; that includes the university student population, which is a good

5,000 of that. So we're talking small town.

The central business district is classic. You know, it's a very small town, we've got urban problems. Those of you that remember twenty years ago, Main Street, 8th Street, were the cross-street highways of this state. It was bypassed by the freeway, we had downtown deterioration, freeway stripped development, but luckily at this time, no shopping center. We still call Yakima our major shopping area and those of us who have an automobile go to Seattle frequently. We have a large population of low and moderate income people who live on second stories in the central busuiness district. We have done very well in the past with community block grant funds. Through the surveys, we have figured this out. The reason the low and moderate income are in the central business district is that's where the lowest rents are.

We have classic other problems. We have absentee landlords. We have old families such as mine who have owned buildings for years and years and on a marginal profit incentive, if any, and do not seem to be willing to place dollars in structural components. It hasn't been until this time that it's really come up. There's very little resale of buildings in Ellensburg, Washington. The gentleman (I hope I understood him right) said something about structural rehabilitation could cost as little as $6 a square foot. I hope that was right because I would say that those of us in small towns are likely to get $6 per year in rent. That seems to be a very real problem with us.

One of the problems we also have is not often is the tenant

of the building the owner of the building, so when you talk to the owner of the building, he'll say, "Sure, I might do something, but I'll have to get it back in my rent." The tenant of the building does not want him to do something to his building because he'll have to pay it in the rent. I think this is classic kind of stuff.

I can only think of one completely renovated building in downtown Ellensburg in the last thirty, forty, fifty years. That was one that was gutted, where a gentleman really didn't know what he wanted to do, gutted the building and thought about making a health club out of it, of all things. It was standing there, the bank across the street (bankers can be good guys, they can be bad guys) coveted the property for a drive-in facility in the center of downtown Ellensburg. So the future of this building, one of our nicest-looking, was endangered. During the same time period, we had an arson fire across another street. **An historic building came down and then was renovated by the bank--well, not renovated, it was torn down and a drive-in facility was built and the drive-in facility is probably the nicest-looking historic drive-in bank you'll ever see, but in the context of what's happening in the central business district and the drive-in concept in a downtown area, it really isn't the greatest thing in the world.** But it's also tied to the state banking law which suggests that branch facilities, especially drive-ins, have to be within so many feet of the institution and that kind of thing. So on the one hand, we lost the building, and on the other hand, we had another building rehabed. The gentleman was aware of the tax act, he was aware of limited partnerships and he had a friend who wanted to hide some

money in an historic building. What happened was to put him over the top, he showed the local bank that he could rehab this whole two story building, about a quarter of a block's worth, for less than the cost of the new construction of a one-story drive-in facility. That really helped his situation.

It was mentioned, I think, by the gentleman from Jefferson County that he called his banks about loans for historic buildings--I agree, we have some basic red lines, what I call red lines, in small towns. It may not be that there's a philosophy behind it, but a lot of times, the major loan decisions are not made in the local community. We don't have local banks anymore. In Ellensburg, we don't. We have regional branches and that kind of thing, so sometimes the decisions are not made locally.

We have problems where the building code and the fire code don't jive. We have a situation in Ellensburg where a gentleman owns buildings that are back to back and he wanted to put a doorway through to connect them. On the one hand, and I can't remember which, said "No, you can't" and the other one said, "Yes, you must." So we have a situation where that happens and I'm sure there are other examples of that.

I spent some time in Massachusetts a few years ago and I'll never forget going into buildings where there was a sign on the front desk that said, "This building is unsafe. Enter at your own risk." I was intrigued with that because things are so healthy and so clean and so pure out here. Back there we've got another hundred years of history and architecture. It seems like a compromise to me. They are saying, "We know we have problems with

the structure. If you want to be here, do so, but you've been notified." And I guess that's one of the problems with what I heard the other day. I've now been notified that Ellensburg may have some problems and we're going to have to address that somewhere down the road.

When we had a couple of arson fires in Ellensburg and there have been more than one over the years--the last one that happened, we had the State Fire Marshall come in from Yakima, and he was quoted in the local newspaper as saying, "These buildings were built to burn." That really helps historic preservation a lot. Now, the State Fire Marshall had the opportunity to appear before the City Council a couple of weeks later and I said, "Gee, can you explain that to me?" And what he really meant was over the years, the modernizations, the false ceilings, the pipe changes, and all these other things that have been added to buildings were a good part of the problem. If the building had been left alone, it would have been in better shape. This is something again, as an elected official, that we have to address.

In small towns, it was mentioned before, we do not have an availability of engineers, masons. The local architect that we have who is a great guy and has done a lot of historic preservation tends to do his estimates too low. That becomes a problem when you're trying to set a budget. We tell our city engineer to estimate high, so when it comes in, we look good. The price of a project is less than your original estimate.

Government money seems to be a catch-all of how do we help. Being involved with local government and receiving government

funds for a number of purposes, there are good things and there are bad things. The museum I work in recently was the recipient of Jobsville funds for jobs in archaeology and in historic preservation. We happened to choose projects that were structural in nature. We thought we could do twice as much originally, as we actually could do with the dollars that were available. The $5,000 grant that we got--the paper work is the same as for anyone who gets whatever number. You have to keep the same receipts, you have to file the same reports, keep the same logs, and that kind of thing. When you talk about small towns and conservative businessmen and government money, they don't want the paper work. They don't want you looking over their shoulder and that kind of thing.

The other prohibition we have in this state for government funds going toward historic preservation purposes is the prohibition of lending of credit, a constitutional problem. What I'm saying is that local government couldn't say, "We can help you fix your facades," when by state law, in a third class city like where I am, we cannot do that, we cannot put public funds in a private enterprise type of situation. We can't loan you money, unless the money comes from another source, like a federal community block grant program. Ellensburg is not one of the cities that has a federal revenue community block grant program allotment; we have to compete for our funds. The last three years, we have been unable to hit the jackpot, the last three years, we have applied for downtown monies, and I think part of the situation is that the state has now taken over the program,

and downtown rehabilitation is not a high priority with the State Department of Commerce/Community Development.

We've talked a little bit this morning about cosmetic treatments of buildings. Some years ago, the Historic Society started on a storefront renovation, we'd call it. It was very interesting because it was really two storefronts with a central area in the middle going upstairs. On the one hand, one side of the storefront was historically intact with the original cast iron columns with the original structure with the rounded cast iron arches, brick-filled, etc. On the other side of the building, the cast iron columns had been taken out and an I-beam was placed across and you could see that; half the building was stuccoed over. From behind we could see that we had the original cast iron on one side and on the other side we knew we did not and because one of the buildings burned in Ellensburg, we got two exact matching pieces that we could put in the other storefront. But it became cosmetic because structurally the original wasn't there anymore. Now we knew that the building had been changed and the reason it had been changed was that it had been made into a drive-through when a car dealer agency was in there. What we didn't know was that the I-beam on one hand was laid on top of the brick column. It just laid there. So the same as, when the gentleman was talking about removing the plaster, when we started taking the storefront apart and put the cosmetic columns back in, we soon found out we had a major structural problem. So we had to rush around, we had to go to the power company, we had to get big beams, we had to hold it up. **People are more interested in**

thinking your building is going to fall down than in what you're doing to the building itself. We had more people stop and look at the beams holding it up than anything else. It was lucky that a local architect had a structural engineer in town within a two week period on another project who came down and in Ellensburg you're still allowed to draw a drawing on a piece of paper and take it down to your building inspector. It doesn't have to be a grand scheme. We had to put a new footing in, we had to put structural material in, and we did so. In a small town, it's often you who are doing the work, so I was in the hole with the jackhammer and everything else. It's hands-on preservation, we call it in the business.

The most interesting local issue we had in the last few weeks was we had a storefront rehabilitation done and a new business started. There were two interior cast iron columns that had been boxed in with plywood. When they took the plywood off, there were two magnificent and beautiful pieces. Our local building inspector went in; he's very new to the job and he reads the code book, and he said, "No, you have to put sheet rock over those." Of course, I became involved a little bit but not too much and I said, "The code says that historic buildings can be no less safe basically. That's the current Washington code, very generalized. It would seem to me that if you took the plywood chimney off of them, they're safer than they were before." Well, he couldn't buy that, and he was afraid of his own personal liability, even though he's covered by the city's insurance policy, he was new, and I think this was the first time our

building appeals code has met in the last five years on this one particular issue. Well, Bob was there, and the engineer, and I said, "Now, how do we take care of this problem?" and the engineer offered up that we might fill these columns with water in some way and if a fire started, the water would boil off, etc. Well, we didn't go any further than that, and the building appeal got together--they were scared by their own personal liability, but eventually they took a vote, it was not unanimous, and the columns stayed. The next thing that happened was then the fire chief came in and I think that he is kind of backing off the situation now a little bit, why, I really don't know, but these problems are addressed in small communities that call the State Office of Archaeology and ask, "Have you ever come up against this?", "No, we haven't," "Has Seattle ever come up against this?", "Not that we know of," and that kind of thing. But what it comes down to is what are we going to do about the problem?

Out on the table, part of this report, are three recommendations. I'm not going to be here tomorrow, so I hope you'll allow me to address them now. It says the State of Washington should adopt or must adopt an historic building code requiring a minimum set of standards for URM buildings. That is going to be probably a serious problem in a city such as Ellensburg or in any small local city, where we may be forced to then administer those codes, to go out and tell people their buildings are unsafe, and really, what we possibly might be forced to do is to shut down the majority of the entire central business district. Another of the recommendations is for every community

to identify their hazardous buildings and to adopt a method or program to abate those hazards. I can see the Legislature passing a bill stating we must do so but not providing the funding to do so. I'm not saying this shouldn't be done, but how do we do it so that we can all live with it and in a way that we can afford and that kind of thing. The third recommendation is to establish a regional review board to assist local communities in dealing with the hazards of URM buildings. Well, I think maybe that ought to be the first thing that's adopted. Establish some type of organization--and I'm not a proponent of more organizations at all--but I think this is going to have to be taken very slowly and I think you're going to have to do it in a manner where you're going to have some steps, and more often than not, I think you're going to have it give it a lot of time, for us especially in the small communities to be able to adopt a program, to do the budgeting and everything else, to address the very real problems. Thank you.

Arletta Gould:

My brother and I bought our building because we were natives of Port Townsend and we were watching our little town get bought up by people who were coming in from outside and we were feeling a little possessive about the town and we wanted to have some control over it, at least a little part of it. We were really fond of the Terry Building, which had been vacant for just about as long as I can remember, and I think much of the building had been vacant almost from the time it was built. When we bought it,

we didn't to make money with it. We're not philanthropists, but people who want to get rich don't live in Port Townsend. It's not fashionable. Between us, we just sold three commercial fishing boats, so when the building came on the market, we were in the position to buy it. I thought it would be less trouble than trying to keep a boat afloat, but I found out that it's pretty much the same sort of thing. Oh, and--Dave Goldsmith--we did get loans.

Also we bought the building partly because we were really naive. It had been empty so long and it hadn't been modernized through the years. That looked good to us but we had no idea of what we were getting into. But one thing we were aware of, when we'd gone to look at the building, there was an earthquake while we were in there with the realtor and we knew, that was one thing we discussed, but as Bob was mentioning, in an old building like this where everything's loose, it just kind of sways with an earthquake, and we figured that with the earthquakes that we usually have in Port Townsend, it wasn't going to be a serious problem. If there was a serious earthquake, it didn't matter where we were in Port Townsend, because the whole town was going to fall down.

One of the problem we ran into when we bought the building was we bought it during an economic slump and we didn't find a lot of people just dying to go into business and rent the space. A lot of it remained empty for a long time.

Another problem was that my brother got married about a week after the sale closed and his wife had an opportunity to go to

school in California, and they left. He hung around and helped me with a lot of it, but he's gone.

Another thing that happened was that when we bought it, we thought that between us, we could do most of the work on the building ourselves. Even when you're doing it yourself, it costs an awful lot of money. So what we would do is wait until we had a space leased and then we would find we had deadlines and we had to get it together much faster than we were capable of doing, so we hired a lot of help. So everything cost a lot more than we expected it to. Also, some of the things that we did do--we put on a roof, and it leaked. So we had to have that taken off and we had to have it re-roofed by a professional. We just found some of the things we weren't capable of fixing.

Another problem with the building is it's not a whole lot of fun to be a landlady. I went into the building yesterday and I came out with a list; among other things, the lightbulbs aren't adequate, we need bigger lightbulbs, and I thought I'm not sure that that's my responsibility, but they asked me nicely and I'll probably go and replace the lightbulbs. There's a leak over Carol's desk. This leak is between two floors and there's no plumbing there. I don't know where the water's coming from, but we've had some pretty good squalls in Port Townsend recently and something's traveling in a strange place and I'm not sure what we're going to do about that. Also the skylights are leaking and the toilet overflowed and it didn't just run out onto the floor, it ran between the wall, and another problem is that the building smells and we don't know what the source of it is, but the

building was mostly vacant for years, it was inhabited by pigeons on the top floor, and even though it's been cleaned, I think that when you heat a building like that, you get an odor again. It wasn't too bad when there were no windows in it. We also have a tenant who built a fence for a little beer garden and he put the fence on someone else's property. She called me and she was very nice about it, but she wanted it moved, and when I mentioned this to the tenant, he said that he thought that was a landlady's responsibility, so I think that if I move the fence, I'll probably take it down but I won't put it back up. Anyway, it's not a lot of fun.

I guess I have really mixed emotions about the building. It's a great source of misery and at the same time, it's a source of pride. Just recently our tenant put the building on the Victorian Home Tour in Port Townsend. It wasn't quite ready for it, I would have rather done it at a later date, but it's nice to hear people say good things about your building.

Oh, and if I had it to do over again, I wouldn't do it.

PANEL 4:
PLANNING FOR SEISMIC HAZARDS IN UNREINFORCED MASONRY BUILDINGS IN SMALL TOWNS: REACTION TO A PROPOSED HISTORIC BUILDING CODE

Keynote, Michael Leventhal
Director, Mobile Historic Development Commission
Jake Thomas, Washington State Historic Preservation Officer
Don Kramer, Structural Engineer,
Kramer/Gehleen & Associates, Vancouver
John Kariotis, Structural Engineer,
Kariotis & Associates, South Pasadena
Janice Niemi, Washington State Representative, 43rd District

Michael Leventhal:

Yesterday we discussed the problems of historic buildings meeting basic safety codes, specifically, unreinforced masonry buildings, and today, as Pat pointed out, we discuss the three point recommendations that I assume all of you picked out from the initial study of this problem completed by the Department of Civil Engineering, the University of Washington and Building Systems Technology. The recommendations call for minimum standards being set for unreinforced masonry buildings; a survey of those hazardous buildings; and establishing a regional review board to assist small communities with the problem. In the panel that will follow, my brief remarks will represent planning, engineering and elected official and preservationist. What is involved in this issue is: 1) economics, 2) cultural resources and their historic integrity, 3) overlapping and somewhat offsetting and contradictory government regulations already set up, and of course, 4) liability.

As a preservationist, my focus is predominantly on the cultural resource found in preserving, restoring, renovating, and in the re-use of our architectural heritage, the surviving historic buildings that we have today. Yesterday we discussed several aspects. Just for clarity--it's occurred to me that we may not all have the same concept of what is in an historic building. What defines a building as historic is not simply age, rather it is a combination of factors dealing with age, cultural association, and an understanding of how architecture, the three dimensional artifact, allows us to be connected with our

history. You can't point to some specific detail of the building and say that's what is important and that's what makes it historic and the rest of it is of minimal value. It is not simply the facade or the decorative elements but it goes deeper into regional adaptations, interior arrangements, decorations, use of material, streetscape patterns, site planning, etc.

In the economic restoration, renovation of a building basically takes in the tax act project. It's a tax act project and that means that the property owner or the developer who is doing the project already runs into two potentially conflicting borders. First is the Building Codes themselves, and from at least the Southern Standard Building Code which is just like all the rest primarily, they say "Under special historic buildings in the district, the provisions of this code relating to the construction, alteration, repair, enlargement, restoration, relocation, or moving buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdictions as historic buildings when such buildings or structures are judged by the building official to be safe and in the public interest of health, safety, and welfare regarding any proposed construction, alteration, repair" etc. And of course, it ends with "The applicant must submit complete architectural engineering plans and specifications bearing the seal of a registered professional architect or engineer".

That, of course, is a problem--it allows the building official to ease his liability, but you can always find an

engineer or an architect, in some cases, to sign almost anything. That's a problem in the profession itself, I don't think that our area is any different than any other area in this respect. Just recently did the new changes, especially in Ohio and Georgia, come into the building codes and they now say that "In addition, the code provides that where if the new use of the building is no more hazardous than the previous use, compliance with new construction standards is not required." And it specifically exempts building officials who follow the acceptable compliance alternatives where the code allows from liability. So if you want to do a building, you already, through historic preservation, have some leeway which to follow.

Of course, following this is following the tax act and the bible of all tax act projects, Secretary of the Interior's Guidelines and Standards. I was amused by reading some of it yesterday. Specifically, in building exterior features, it is Recommended ("Recommended," by the way, in Park Service Government language means "Yes"; "Not Recommended" does not mean it's as if you have options, where you can say, "Well, I didn't follow that recommendation," it means that "You will do this" or "You will not do that," but I always like a word that's made to seem like you have some volition in the matter)--it is "Recommended" repairing or replacing, where necessary, deteriorated material with new material that duplicates the old as closely as possible (I was thinking of styrofoam yesterday which isn't quite like stone but I guess it could be if you were drunk enough), replacing missing significant architectural features such as cornices, brackets,

railings, or shutters. Those are all required. "Not Recommended" is applying new materials which are inappropriate or were unavailable when the building was constructed, such as artificial birch siding, artificial cast stone or brick veneer, and I guess styrofoam could be added to that. It goes on to talk about roofs and roofing, preserving or replacing where necessary ("where necessary" means "you shall"), all architectural features that give the roof its character, its central character, such as normal windows, the cupulas, cornices, brackets, chimneys, crusting and weather vanes. "Not Recommended," of course, is stripping the roof of all architectural features important to its character.

The Secretary of the Interior goes on to the Safety Code Requirements: "Recommended" is complying with Code Requirements in such a manner that the essential character of a building is preserved intact, working with local code officials to investigate alternative life safety measures that preserve the architectural integrity of the building, investigating variances for historic properties, allowed under some local codes. Also "Recommended" is installing adequate fire prevention equipment in a manner that does minimal damage to the appearance of the fabric of a building, adding new stairways and elevators that do not alter existing exit facilities or other important architectural features and spaces of the building. It is "Not Recommended," of course, to add anything "life safety" which removes important architectural features and spaces from the building.

So if you want to do a tax act project, you've already got some leeway in the code and the Secretary of the Interior says

when it comes between the code and the integrity of the building, the architectural fabric of the building, you must lean with the architectural fabric of the building and find some way to get around it.

After this, we get to the findings of the dangers of the unreinforced masonry buildings. **Historic preservation has fought and argued for more lenient treatment before the building codes, and yet, as preservationists, we must recognize that cute is not always safe as we look at the buildings, and more importantly, if disaster strikes, do we want all of our historic architecture stripped of details by public outcry and by public liability?** In some of the cases, we may be dealing with a fine line. The object to me is not to make old buildings like new but rather to make them as safe as new construction. And we need not sacrifice visual excitement for safety. Design creativity must take a part in the process. It's a balancing act to properly insure and to properly make sure you understand if you're going to renovate and rehabilitate, because anyone can remodel. And if you streamline the building just to make it safe, you may have lost all those characteristics that make it important and historic.

Not everyone yesterday was in agreement, as you probably remember. While some felt that damage may potentially exist, it has not happened, others said it was in the cards, maybe not today, but sometime down the line. Economics seem to be an even larger problem than the hazards. Economics for the owner who would have to find the money to do the work, by the government who would have to find the money to do the survey, and by the people

themselves, you and I, if we lost all of our cultural resources. In the last panel yesterday, several points were made that I feel need repeating. The first was, will the new code make a difference? Will the small towns be able to administer a new code or simply shut down unsafe old buildings? Who will pay for the work to be done? Will there be any financial help from the property owners themselves?

There is an interesting phenomena happening in New England and spreading among sly folk around the country in doing tax act projects. Corporations are buying buildings, they are doing plans, they are looking at the buildings, they are removing all those elements which they find do not correspond with their plans. The corporation then sells the building to a subsidiary corporation of themselves. According to the Interior Department, once you get a building in any condition, if it's still historic, you are not liable for the past sins and past owners. So what owners are doing is they're stripping the buildings, setting up a new dummy corporation, going before the Park Service and saying "I don't know who did this work. This is the way we found it. Everything was stripped." And what happens is that when you talk about regulations and who's going to help the property owner, the property owners in a sense seemingly given their own selves to pay for will strip the materials.

Also asked yesterday was how can experts get to all the small towns? It seemed like a good idea but how is it to be executed in some manner? To me, and again I stress this, it is important that the present and next use of our historic buildings not be the last

use. And it seems to me also that the historic preservationists have responsibility to set up and indeed try to find the solutions to save as much of the historic fabric as possible, rather than having disaster strike and have them lose it by people who don't quite seem to understand why we want to save all of it in the first place.

Jake Thomas:

I apologize to you all for not having been here yesterday but these are busy times for Olympia bureaucrats so if I repeat something that was said yesterday or if I get off on a subject that looks repetitious, interrupt me, please.

Briefly, I am very much in favor of an historic building code if what that means is that you don't have to do unnecessary and expensive improvements to historic buildings when there are alternate ways, cheaper ways to make the buildings safer.

There is a clear problem with the existing building code in its lack of specificity with respect to historic buildings. What it does is merely create confusion by providing discretion to the local code official to grant an exemption from strict compliance to the building code so long as the building is somehow safer after the project is finished than before it began. But in the absence of specific guidelines, no official in his right mind is going to exercise that discretion because what that means is that he takes on himself the responsibility if something goes wrong. If with the regular building code strictly enforced, people die in the building, the responsibility is with the code and not the

official if the official's done his job in interpreting the code and enforcing the code. If the official exercises his discretion, he is taking on himself that responsibility and few are willing to do that.

We all know that unreinforced masonry buildings behave differently in an earthquake than other types of buildings. It is therefore ridiculous to impose design requirements that assume those buildings are something they are not. Clearly, there is a need for an historic preservation building code, the unreinforced masonry buildings' code. What we do with that though, with the knowledge that that is necessary, is an open question.

The findings of the seismic study are disturbing both from a point of view of life safety (the threat that seems to exist for the occupants of those buildings important to our national heritage) and from the point of view of future preservation re-use of those buildings. We've always known that there was a problem but maybe we didn't know how serious it was. In deciding how to respond to what needs to be done and where to start, we need to be very careful indeed.

Historic buildings, as we have learned, are just real estate like any other kind of real estate. They are investments and they compete with other kinds of investments. And because of the costs of long-term improvements, the cost of preservation over the long-term and bringing the buildings up to a useable condition, there's a great capital need, a huge amount of capital is needed for historic preservation--and when you're in the capital market where other investments are available to the people who have

capital to invest, the psychology of the market becomes a critical consideration.

When looking at other kinds of markets, the stock market, commodoties market, you can see phenon where the self-fulfilling prophecy is created. The Wall Street Journal reports that the stock might go down and the stock goes down, not because the stock was not good stock but because somebody said it was going to go down. If we are saying that historic buildings are unsafe, that they are a risk to the lives of the people within them, the very problem of attracting capital to historic buildings is made that much harder and the public relations of the seismic problem, how we present that to the outside world, in the context of the legislature, in seeking changes in the building code, all this stuff is very, very public. We have to worry about the capital needs of historic buildings and the pyschological effect of what we are telling people. So I guess in deciding what to do, it's necessary to look at the market psychology and the economics of historic preservation.

If you look at the effects of historic preservation tax credits over the past four years now, you'll see that it has resulted in great activity in downtown Seattle and very little activity practically everywhere else. That means that there was a situation in downtown Seattle where the economics of historic preservation was favorable enough that when they changed the tax law, it put the thing over the top. That hasn't happened elsewhere. We're going to have to, I believe, through the state tax structure, improve the economics in other parts of the

state, in rural areas, small cities, to bring them up into a position where they are also competitive with other kinds of investments. If we don't attack the economic problem at the same time that we attack the code enforcement problem, then the result will not be that we have safer historic buildings, the result will be that we will have fewer historic buildings because those buildings that are so important in our heritage will not be useable and it will be necessary to remove them.

Don Kramer:

As a practicing structural engineer, what I would probably recommend is an enforcable building code that has a lot of leeway for the practicing engineer to come up with a scheme that would bring the building into a safe or non-collapsed condition . Any code that is proposed has to have very loose guidelines, it has to allow a lot of interpretation of how a project is put together and how it is analyzed, so that the most economical system can be put into effect that will allow the buildings to remain in service. How that is to be done remains a very tough question.

I know that the building officials would like to see something that is very specific in nature and, as I said, the structural engineers I think would probably like to see something that is fairly liberal in interpretation. That's going to be a very tough problem to resolve so that everyone feels comfortable with it, and I don't really know what the answer is. I know that we have worked very closely with the building officials when we have renovated these buildings and we've been very fortunate in

that these people have had an open mind as to what we were able to do and did not take a strict interpretation of the code. Now there's a lot of these smaller agencies around that are enforcing the code that do not have some of the expertise that some of the agencies that we've been working with have and those are going to be a very difficult type of people to deal with, I think, in the strict sense of the code. Again, I don't have the answers of how to best come up with a code, but I do know from a structural standpoint that we do need something or some guidelines and the officials need some guidelines as far as the older buildings are concerned.

John Kariotis:

I'm going to speak to you somewhat on California experience. I started about the time of our research on Earthquake Hazard Reduction/Existing Buildings as a consultant to the California State Historic Building Code Commission. Our section on earthquake hazard reduction or reduction of ordinary hazards is one chapter out of thirteen, so as you can see, the earthquake hazard for historic buildings is only one of many of the hazards that a building is subjected to as far as natural hazards. Fire, in reality, if we look at nationwide statistics, removes more of these buildings than an earthquake ever does. A historic code, in my opinion, has to be complete and consider everything including how to access the handicapped to the structure as well as how to reduce hazards.

I've heard several times (it always comes up) this group

use the words "safe" and "unsafe." One of the things that we had to first spend almost a year to a year and a half on, on the State Historic Building Code Commission for California, was to quit using the words "safe" and "unsafe." They are words which in everybody's minds have an absolute line drawn through them. **There is no such thing as "safe" and "unsafe" in my opinion unless I want to define an absolute, bottom line which is considered as acceptable risk, and even then if I were to consider a line of acceptable risk, that again is a judgmental kind of thing.** It is always probably best considered in the Fire Marshall of the State of California's understanding of exiting. In his belief for exiting, exiting problems can be solved by early warning such as smoke detectors, heat detectors, and fire sprinklers, so in that one case, our State Fire Marshall will almost for sure, by establishing early warning systems, allow exiting, which is not in conformance with what he would recommend for exiting alone. This is a trade off. So now as you can see, what he has done is been able to quantify what is called acceptable risk. I hope that we can do the same kind of thing on earthquake hazards.

Earthquakes, as I showed yesterday, come in all varieties and intensities. We have to recognize that we have a probability that tends to be ten times larger when we talk of something of half the intensity and we have to recognize that life safety (which we all talk about because when we talk about "unsafe" it is typically related to life safety, not property damage and we must try to get the philosophical understanding of this) is typically related to an element separating from the building happening to coincide with

the person adjacent to that building. The two deaths in Idaho in the Mt. Moore earthquake was an absolute fluke. By the same token, look at Colinga, a 1983 earthquake in which the entire downtown business district was literally laying in the streets and almost out to the center of the streets. Not a single death. I went through that town, none of us could understand how no one was killed in it--and no one was. The probabilities! Everybody says that our earthquakes in California always occur at night so we have very low deaths. Yes, that's true, we do. It's a matter of statistics. The probability of an earthquake occurring in any minute as best we can tell is exactly the same. So what we have to do is say, "Can we then take life-loss threats to zero?"--no more than we can in our automobile accidents. We cannot.

What we can do and what we need to do is talk of risk reduction. The same way we talk of risk of fire-reduction, risk of death and fire, we must talk of earthquakes, risk-reduction, so then we can drop the words "safe" and "unsafe." It's in the state's preamble for the mandatory code of Los Angeles. The city attorney advised that the principles and goals of this code are to reduce threats to life and property damage. This then gave the building officials all the leeway they needed to be able to rationalize equitable solutions.

There must be equitable solutions, just as mentioned. Existing buildings come in all varieties. There's never one existing building in which you find all of the things you could ever write in methodology. They are random and understood in randomness. That brings another problem I'll talk about later.

But it also says that you can never write a precise code. A building official can never have a code that says "Do this, do this, do this." You can do that for new buildings because you can confine the use of materials and methods of design for new buildings. The existing building exists. It's already been built.

When we first wrote the State Historic Building Code (myself, the San Francisco consultants, and the people from around the State), we thought that we would try to write something that would be as permissive as possible; simply, we wrote what we called a performance code. A performance code states what the goals are and states in general terms how you are to attain those goals.

After five years, we found it unworkable and abandoned it. What happened is that the code required a sophistication that was not generally available in all parts of the State of California and it required a sophistication of the building official to interpret the results that were given to him that was not generally available throughout California.

We now have changed the State Historic Building Code to actually allow an analysis with recommendations so that the person can analyze in conformance with UBC modified by general rules that we set up in it and we also opined that the methodology that ABK prepared as a reference document can also be used. It also states that the intent is to reduce hazard. So that is what happened and that's what the State of California State Historic Building Code now encompasses. It does use a document which is referred to as a methodology, and we wrote our methodology for exactly that

purpose.

Typically in writing codes, the first thing you do is you write a code. Then you write what is called a commentary to explain what you just wrote in the code. It's a necessity. Code language is apparently absolute, says "You shall." But in many cases that mandatory language must always be used with judgment. So you write a commentary to try to explain why so that when somebody comes and says I don't have this kind of situation, you can go to the commentary and try to find out what was the reason, what is the validity of this, are there extenuating circumstances because of what happens here. We wrote our methodology after great discussion between the engineers, Al Johnson, Steve Barnes' office and myself, trying to decide how to write this document as our final part of research. We decided to write a methodology with simultaneous recommendations and commentary.

And so that was our concept, which we have found makes a workable document. We must try to explain at the same time we recommend, saying "we recommend because...." **But the most important thing for any state historic building code is that it must consider the earthquake threat as only one of the threats and that the goal is reduction.**

Now if we come back to that phase, as we stated yesterday, we have earthquakes of less than design intensity. Yesterday the seismologists of the State of Washington stated that the USGS predicts (and I'm sure that's right, I've seen the same thing) that a magnitude, a Richter magnitude of seven and a half, seven kilometers in depth, is the so-called design level or credible

level for Western Washington. That's true and that's also what I would call a near zero probability earthquake. It's what we call a maxim credible. It's the upperbound. We have to recognize that if we were to have that (and that were to produce a certain surface shaky intensity), we also have an intensity of one quarter of that that's a hundred times more probable and an intensity of one-half of that that is ten times more probable. **We have to deal with probabilities just like in all other things because we have to recognize you cannot bring life-loss to zero.**

A single object, such as a bookcase, can become a significant life-safety threat. The breaking of a gasline from a water heater that collapses and causes a fire can become a significant life-safety threat. Yes, it's related to earthquakes. No, it is not related to that building. It's a unique kind of thing. We can reduce threat and by doing so gain the majority as I stated yesterday of life safety threats by an exceedingly simple thing. And that is if you had your choice and we say it is a choice in higher seismicity as well as zones of moderate seismicity, it has to do with appendages at the roof level and above the roof level. That's basically where it is. In Colinga it was where it was when the EPA was .6g--one and a half times the design level considered for California. We can have earthquakes that are larger but do they do more significant damage? No, they just do more general damage in the same character. Only two buildings totally collapsed in Colinga and they had unique properties. For instance, someone had at one time taken the brick wall off the back of a building so the building stood with two side walls and

at the time of the earthquake, promptly fell sideways. Apparently they took the back wall off during a renovation and built a wood frame structure but didn't attach the wood frame structure.

Those are the kinds of things that happen and we've probably all seen them happen, and they happen from no code enforcement. Those kinds of things are going to effect all of the buildings in the city. So essentially what I would advise is that earthquake safety be considered as part of a state historic building code.

Again, we've had discussions of state historic building codes; I would expand it because I'm working on another project right now which is funded by NSF and it has to do with existing buildings. A historic building and an existing building both deserve special consideration. A historic building has, in my opinion, much more interest to me, because I see that they are an exceedingly important part of what we live with in California even though our history is not as old as Oregon and Washington. It was settled by the people coming for the Gold Rush in 1840 while the people were coming across the Oregon Trail and settling and populating this area. The majority of our structures date from 1880, not as nearly as old as you find up here. I would certainly suggest that you do advocate and work very much for a comprehensive code recognizing that your goal for all things even like for access for the handicapped must have a vehicle and you must have a way of making workable solutions that retain to our fabric.

David Goldsmith:

My views give you one more from the practitioner as a pragmatist in that I'm often called upon to interpret those codes and enforce the codes. I guess I'll start off by saying if we're going to do it by code enforcement alone, we're not going to do it. The realism in the hinterland is that we're not equipped, certainly not well equipped, to deal with these kinds of issues. We can deal with stick frame houses, residential development--no problem. We get into unreinforced masonry buildings, commercial developments, etc., and we get way beyond our local expertise.

A somewhat typical profile of a building official (I think) is a person who somehow works with the trades, either as a carpenter or a contractor or sold materials, and somehow got hired on by local government probably at a reduced salary to administer the building code. Certainly that has been the case where I come from and as I travel around the state, that appears to be the case in other areas. So we're not dealing with people who have a lot of expertise in this kind of business. Nor are they able to make some of the interpretations, certainly not the engineering interpretations that are necessary, so who do they turn to but the city accounting engineer, generally a civil engineer who builds roads, puts in sewer lines and water lines but is not trained in any kind of structural phenomenon. Therein lies the problem, because we're called on to do a duty that we're not equipped to do.

I think that the code is important and I do believe that we need a historic building code but a code that I can use in my

community and others can use in other small communities and make it work. But I think what we have to consider is not only just the code and I want to talk about the kind of three pieces to this puzzle that I see.

The first is the code, some kind of a baseline, something that says this is what ought to occur. We do have the uniform building code now that says that if we're going to re-do a historic building we have to bring it up to no less than what the code calls for under new construction, whatever that means. In the City of Port Townsend, it's been the practice for a number of years to ignore the UBC when it comes to restoration of historic buildings and for a very good reason. **If we were to apply UBC code in Port Townsend, we would not have restoration and in fact we would end up confiscating and owning most of the downtown.** And we certainly don't want to do that. The other part is the liability that's associated with all this, this big fuss of liability we talked about yesterday, and whether it's all going to fall down is anybody's guess. Stevens County is currently in a lawsuit that'll be going to the Supreme Court that addresses this liability and the issuants or not-issuants in the use or not-use of the uniform building code. I think we're all, everyone who has something to do with the code enforcement phase of local government, very concerned about that case and how it's going to come out.

The second part I think that we need to deal with is the incentives that we provide to society, to the building owner to maintain a historic building. I'd like to read a couple of

sections out of the Standards for Rehabilitation and Guidelines for Rehabilitation of the Secretary of Interior's Office. The only thing I could find that had anything to do with the structure of a building had three recommendations. One is that we recognize the special problems inherent in the structural systems of historic buildings especially where there are visible signs of cracking, deflection or a failure. The second part is undertake stabilization repair of weak constructional members and systems. And third is to replace historically important structures and members only when necessary, supplementing existing structural systems when damaged or inadequate.

What we don't talk about is life-safety issues that we just discussed a little bit this morning. We don't talk about what happens, how to apply these regulations to maintain our historic structures and what to do about the size of the grids and other kinds of hazards. I'm not a person who has gone through applying for one of these grants but it's my understanding that the structural stability of the building, the kind of engineering that needs to go in to determine whether or not there's a problem and how to correct that are not the kinds of things that the Department of the Interior finds as exciting as fixing up the facades. And it seems that if we're going to ask society to believe that these historic structures are important, we certainly ought to consider the structural stability as the first course of the action and fixing up the outside and the facade as the second course of action. I think there needs to be some changes here as well as within our tax laws to ensure that this is a major

consideration.

The third part, I think, deals with our attitudinal problems; we talked a little bit about that yesterday. I believe there needs to be a fairly wide-ranging educational and technical assistance program. I was kind of excited about the Main Street project coming to Pt. Townsend; I believe that this has going to be a great opportunity to inventory the town, find out what the towns are, and recommend some corrective actions. The thing that we don't want to do is scare people away from rehabilitation, but we want to be sure that those buildings, once rehabilitated, will be there ten, twenty, thirty, fifty years down the road.

I think we also need to educate my side of the table, the people that are out there enforcing the code, to give them some background. My building officials go out and go to a number of conferences on plumbing, structural, commercial, mechanical concerns but we've never talked about seismicity, we've never talked about structural ability, we just kind of ignore those kinds of things, and I think it's typical of what society has done over the years. We've said, "That's a risk, that's something that may or may not happen, but we don't want to deal with it." It really was interesting when this article hit the paper in Port Townsend on Wednesday, front page, "Downtown May Be In Rubble The First Time We Have A Good Earthquake." There's a lot of discussion back in the coffee shops, in the bars, about that particular article. And I think it's something that we've ignored. Certainly the building owners But it's the kind of thing that's on the back burner and not in the forefront. Now we've got

people scared, we need to turn that around and make some positive things out of it.

The historic building code may be one aspect of that, tax incentives and funding from the Department of the Interior may be another one, and keeping the people informed and educated on what they can do. The idea of some kind of a handbook was no doubt discussed yesterday, both pros and cons. **It certainly would be a good step if somebody said, "Hey, maybe when I go to put my roof on, I ought to attach the parapets."** That is a pretty good consideration. I think that most people agree that that's part of the step that ought to be taken. That's the kind of hands-on material that would really help the sweat-equity person out there that each day is going and trying to patch the boards a little bit and keep the building standing.

So I think it's like a three-legged stool, there are really three parts to it. There's the code, there's some kind of financial incentive from the public sector to keep these buildings (and we ought to put our money where our mouths are), and then the third part is the education and the technical assistance.

Janice Niemi:

Speaking last on the panel, I don't think there's going to be anything substantive that I'm going to be able to add to your comments but I hope I can be a little bit practical. My name is Janice Niemi and I am a State Representative from the 43rd District which includes the International District and Pioneer

Square so I have a vested interest in this as something that interests part of my constituency. I am also as Pat said the House Chair of State Government. All I'm going to talk about is if you want a historic building code how, practically, I think you should go about it. I've heard some comments about tax credits and let me give you my outlook on tax credit possibilities.

First we'll start with the federal. I'm relatively familiar with the 81 Act in the Rehab. credits. I rehabilitated a building myself, not a historic building, but I watched that act a lot and I think you cannot expect anything more from it and they're whittling away at it, as a matter of fact. So whatever federal tax credits you have are probably all you are going to get. And they're pretty advantageous.

From the State--believe me, everyone of us has clear instructions and has had for the last six months not to promise anything--I would be very, very pessimistic about any state property tax cuts for historic buildings. We're really going to hold the line. The revenue forecasts are very pessimistic. We don't want to add taxes (and this is a politician now), we don't want to increase any kind of taxes. If we touch taxes, it's going to be fooling around with the B & O tax to encourage job creation but it will not be giving any credit to anybody. Now you may be able to sneak one through, all of us have tried to sneak one through for our various constituencies. We're very good on court but I don't think you're going to be able to do it. So your only tax credit possibilities are the local level and you all know that better than I, but please don't look to the state for that.

So then we get to the State Historical Building Code. I talked a little bit to Pat about this and I have a vague knowledge of the California code and I would suggest, if you want to present it, that would be the base that you want to build on. From the people I've talked to, I would gather that you probably want a code with more teeth than the one California has. And by all means, you want to start out with a code with more teeth--you may not end up with it. It may be one of the negotiations and you may have to give a little on it. That's how legislation comes along. I would personally suggest that you try to have a more rigorous code, less rigorous than what it involves currently with minimum requirements.

There was a discussion of a an advisory committee. I don't think that is exactly what you want. I think you may want a committee that will have the kind of expertise to help local inspectors and also recommend resources. The problem is it has to be structured so that it is not going to cost the state a lot of money. Whenever we decide to use an advisory committee, it is minimally funded. If this committee, which sounds as if it may have do to more work than a normal advisory committee, could be set up to be self-supporting, it would be fine, if peopple could pay fees for it. But it cannot be an expensive committee. It's not hopeless at all, I think it's a real possibility. And then of course the idea is that by making it stronger than California's, anyone who follows through with the recomendations after the instruction of the committee can be released from liability, and that's the lever that you want to use.

If you want to have a state historic building code and if you want to work on it this session (and I would suggest that you should because it is a long session and there is more time to do it), then you must do it in a methodical and I would hope practical way. The first thing to do, aside from writing your code (that's the very easiest thing to do, you just sketch out some things) is find out who you want to sponsor it. You need to find out who is most concerned with this. The county and local and municipal officials are the people that are going to be most concerned. They have the most at stake, they are the ones that have problems and are ignoring it, as was just said, with good reasons. The law now is that if they don't know anything about it, they're not liable. They're the ones that have a good lobbying organization that we all respond to, we in Seattle perhaps a little less than other legislators but then we're not the majority of the Legislature either. I don't foresee a problem getting an agreement with local governments. I think they're as concerned as anyone else. So if you can go in with the united front with governments, that will mean a lot.

There are some other things on which I will disagree a little bit with the speakers or one of the speakers. This next session we're going to have a real fight and we have had a little bit at the last session. I'm having an interim hearing in December on Committee Weekend, which will be almost entirely devoted to a State Building Code. And that is just an absolute mess. The one thing you want to do is avoid that flagmark because if you're not, if you get involved, if you get into a comprehensive code and

you're fighting the State Building Code, you're going to die because there are many, many big vested interests involved in it, and if you can avoid it, you may be able to sneak through. The obvious issue is that the master builders, Seattle builders, all of the builders want a code that is not very difficult as far as energy requirements go. The Northwest Power Planning Counsel and the State Energy Office want a rigorous code. They've been at each other's throats. We have a state building code advisory committee that is not making a lot of progress, they've been at each other's throats for several years. I don't think we're going to solve it this year, and you want to just stay out of it, if you want something. Maybe it would be a far better and more practical historic building code if it was part of that but you aren't going to make it as part of that, in my opinion. Of course you never can tell what's going to happen.

But you have really a very desirable product. It's an attractive thing for a legislator, as I noted when Pat had a small part of my hearing last summer. There was a slide show, which was a nice diversion for legislators. **Historic buildings are attractive. It's good politics to try to rehabilitate the smaller buildings.** Most of the legislators, as I've said, come from smaller communities. Their communities are interested in it. If you work it right, I could be rather optimistic about your success. And as you know, I've said nothing substantive, I don't know what should be in that code. I know it should be less expensive than what they have to deal with now, because I think that rehabilitation has pretty much stopped in a lot of

communities, and I know you should do it in a practical way with your local officials.

Page Intentionally Left Blank

SUMMARY AND RECOMMENDATIONS

Neil Hawkins
Chairman, Department of Civil Engineering,
University of Washington

Page Intentionally Left Blank

Neil Hawkins:

First of all, I'd like to thank all of the panelists and the keynote speakers who have come here and shared their expertise and knowledge with us. This isn't an easy problem to grapple with; as soon as we get into dealing with social and economic questions and out of the area of structural engineering, structural engineers have to tread very carefully and building officials have a lot more experience in how to deal with some of those issues. But I think that when we talk about this, we can look at it as four separate sub-problems, if you like, and I hear these four separate sub-problems coming up here again and again.

First, there's a question of the community's vulnerability. I think that one thing that our study has very definitely demonstrated is that in small towns there is often a community vulnerability--and that community's vulnerability comes about primarily from an ignorance point of view. Many of these communities are going to be vulnerable to an earthquake. But it isn't the earthquake that makes them vulnerable. They have become vulnerable primarily through a lack of maintenance of existing structures in their towns. The job is to make people aware of what is the problem with those structures. The natural reaction seems to be to attempt to deal with that through some sort of regulatory aspect. I hear discussions here about regulatory aspects. One thing that you don't want to do with any sort of regulatory aspect is make the community more vulnerable than it was before you put in your regulatory aspects. So we get into a lot of these economic discussions: how can we do some tax law or

how should we trade it off?

I think that we've heard some very interesting perspectives on the state's historic building code. Of course, throughout the United States, building enforcement is really at the county level and when the city incorporates, it goes down to the city level. Whether the state gets involved is whether it sees it really as a state-wide problem. So I think one issue to be addressed is whether this really is a state-wide problem which needs to be addressed at the state level.

I think that if you look at third world countries you quickly come to realize is that information dissemination is a very important aspect of what goes on and when we're dealing the large cities and newspapers and TVs that come out to us very quickly, information dissemination is very easy to get to the people, quite often to the people who at least will be dealing with the buildings and trying to get some information on them. But when you go into the small towns, the information dissemination is much more difficult. It is not well organized. If you're talking about this small village versus that small village then it really depends very much on the village structure as to whether anything takes place. If there is a strong village structure, no matter what it is, then you'll be asked to do something quite useful through information dissemination. But you must go to the important element in that village, whatever it is, that provides the structure, and start doing information dissemination through there. There's no good the government sitting back in its state office or whatever else it is and putting out edicts as to what

should be done. As we look at these small towns, I think we're really dealing with almost exactly the same problem in much of the states of Washington and Oregon and Idaho, we're talking about a problem where we need to know what is the social structure of that town, what it builds around, and get those people interested in this problem and to understand that there are going to be benefits to their town as a whole by working together to overcome this problem.

Another interesting thing you can do is to perhaps look at it from the viewpoint of cost benefits. You've heard a number of statements here on what are the costs, what are the benefits, what's equitable, what's not equitable, how do you define it, and so on. You can, if you like, draw up a list of alternatives to go through and explore some of the costs and benefits to them so that people are asking themselves the right questions about what needs to be done. Now these are just a few remarks on what you might poker at as the overall implications of this study.

I think what we need here in the words of the federal government officials that I was talking with yesterday is a road map. What are we going to do from now? We've heard a number of recommendations here. I'd like to get some sort of road map. I'd like to be able to go back and say to Federal Emergency Management Agency, "Hey, here's something that you might be interested in taking up as an idea," or be able to go to the National Science Foundation and say, "Here's something that you really ought to be looking at as sort of priorities for research," and also to be able to talk to the local officials here and to the state

officials and say, "These are things that you should be taking into consideration."

Now, the problem of dealing with an existing building is a major problem, whether it's an historic building or not. We have building codes that are extremely difficult to apply for existing buildings. In fact, if you're a structural engineer you'll know what ATC 306 is--it's Applied Technology's Council's recommendations for new buildings--and it really had a whole series of recommendations for existing buildings that never went through the complete review process. Now FEMA is trying to move into a situation with issuing regulations as far as that's concerned, and I don't have very much hope for them ever being able to deal realistically with the historic code. So that is going to have to be an issue addressed, as John Kariotis said, on a knowledge of the local seismicity and local conditions--and I really mean going down to the local conditions in the local town and the local strengths of the town too.

So--I would like to try and get from you as a collective audience recommendations on a road map. What will we conclude from the discussions we've had here in the last few days? Maybe just quickly brainstorm through here, what would be the first sort of thing that pops into peoples' minds as to what we should be trying to do. In your package, you got a series of recommendations. The first one was to work on a State Historic Building Code. Is that something that should be undertaken? Would this group recommend an action on State Historic Building Codes?

(Discussion follows.)