



**RETHINKING THE FUTURE SINCE
SEPTEMBER 11, 2001**

Pace University, New York City
September 6-8, 2006

www.pace.edu/aftershock

Edited by Katie Hall

PACE UNIVERSITY PRESS NEW YORK

CONTENTS

Also published by Pace University Press

Terrorism and the Psychoanalytic Space:

International Perspectives from Ground Zero

Edited by Joseph A. Cancelmo, Isaac Tylim, Joan Hoffenberg, and
Hattie Myers

© PACE UNIVERSITY PRESS 2007

1 PACE PLAZA

NEW YORK, NY 10038

ISBN 0-944473-83-0

Aftershock : rethinking the future since September 11, 2001 : a
conference held at Pace University, NYC, September 6-8 2006 / edited
by Katie Hall.

p. cm.

ISBN 0-944473-81-4 (alk. paper)

1. September 11 Terrorist Attacks, 2001--Influence--Congresses.
2. September 11 Terrorist Attacks, 2001--Social aspects--New York (State)--New York--Congresses. 3. September 11 Terrorist Attacks, 2001--Economic aspects--New York (State)--New York--Congresses. 4. September 11 Terrorist Attacks, 2001--Environmental aspects--New York (State)--New York--Congresses. 5. Terrorism--New York (State)--New York--Prevention--Congresses. 6. Terrorism--Government poli- cy--New York (State)--New York--Congresses. 7. New York (N.Y.)-- Social conditions--21st century--Congresses. 8. New York (N.Y.)-- Economic conditions--21st century--Congresses. 9. New York (N.Y.)-- Environmental conditions--Congresses. I. Hall, Katie.

HV6432.7.A3814 2007

363.325'140973--dc22

2007005290

FOREWORD

David A. Caputo, President, Pace University

vii

MAP OF LOWER MANHATTAN

x

ACRONYMS

xi

OPENING REMARKS

Daniel Doctoroff, Deputy Mayor for Economic
Development and Rebuilding, New York City

1

PANEL 1

*How Has 9/11 Changed the Preparedness of First
Responders: Are We Ready for the Next Attack?*

9

PANEL 2

Economic Impact: Global Business Community

31

PANEL 3

Environmental Consequences: Public Health

49

PANEL 4

If You Lived Here

69

IMAGES FROM THE CONFERENCE

94

PANEL 5

*Victims' Families and Their Influence on
Public Policy*

107

PANEL 6

Rebuilding, Repair, and Hope

131

PANEL 7

Higher Education

155

PANEL 8

America's Place in the World

1

CONVERSATIONS

- A Conversation With Mark Schaming*
- A Conversation With Tom Farkas*
- A Conversation With Steve Mendelsohn*

BIOGRAPHIES

PROGRAM

Aftershock—Rethinking the Future Since
September 11, 2001, September 6-8, 2006.

181

211

223

247

Pace University intends this publication to serve as the formal record of the proceedings of "AFTERSHOCK ~ Rethinking the Future Since September 11, 2001," a conference held at Pace University in Lower Manhattan, September 6-8, 2006. All efforts have been made to preserve the spoken character of the panelists' discussions. However, when necessary, the text has been edited for clarity and readability.

FOREWORD

In September 2006, Pace University was honored to host “Aftershock: Rethinking the Future Since September 11, 2001,” a three-day conference examining the economic, cultural, environmental, educational, and political consequences of the day five years earlier that forever changed the world.

Participants from across the globe and from our neighborhood near Ground Zero took the occasion to consider the consequences of the terror attacks, lessons learned, and what the future might hold for us.

Our goals were simple: to shed new light on important questions in our post-9/11 world, and to engage in conversation that might lead to a better understanding of that day.

We assembled an extraordinary group of individuals to lead our conversation. More than fifty people on eight panels and four keynote presenters agreed to share their experiences, expertise, and wisdom about the terror attacks. I want to thank each of them, especially keynoters David Gergen, Lee Hamilton, Doris Kearns Goodwin, and William Kristol. Their thought-provoking commentaries gave us a unique perspective on the state of the world five years after the attacks and a context for our panel discussions. Our students and faculty are particularly grateful to them for classroom exchanges during their visits to campus.

Our gratitude is extended to the Pace University Center for Downtown New York (CDNY), which conducted the conference, and the conference director, Meghan French. Thanks to the generosity of donors to CDNY, the conference was presented free and open to the public.

We also thank the Port Authority of New York and New Jersey and Lehman Brothers, whose grants helped underwrite portions of the conference; Crain’s New York Business and the Partnership for New York City whose Business Breakfast Forum opened the conference; the New York State Museum for contributing their exhibit, “The First 24 Hours,” and television

station NY1, which broadcast live from the conference each evening.

We hope our conference made a contribution to the international conversation surrounding the terror attacks, and that this volume will be a resource to scholars and others who will continue to try to make sense of the events of September 11, 2001.

David A. Caputo
President
Pace University

PANEL ONE

HOW HAS 9/11 CHANGED THE PREPAREDNESS OF FIRST RESPONDERS: ARE WE READY FOR THE NEXT ATTACK?

JOSEPH RYAN: Good afternoon everyone, I am Dr. Joseph Ryan. I am the Chair of the Criminal Justice program here at Pace University. Prior to coming to Pace University, I was with the New York City Police Department for 25 years. After I left the Police Department I worked for the Justice Department where I helped develop security plans for the 1996 Summer Olympics. While here at Pace University, I was awarded a grant to evaluate President Clinton's hiring of the 100,000 community police officers and I'm currently working with the Department of Homeland Security to develop public-private partnerships that deal with terrorism as well as to promote higher education.

ED GALEA: I'm Ed Galea. I'm the Director of the Fire and Safety Engineering Group at the University of Greenwich in London. I run a group of some 30 people and we spend our time trying to understand how fire develops in structures and spreads, as well as how people react to fire. The reason we do this is so that we can develop and improve our building codes around the world and so we can design buildings for real people, rather than the fantasies that engineers have in their minds. We are also working to improve our computer modeling tools that engineers and architects use to design buildings.

My team is made up of a multi-disciplinary group of people. We have behavioral psychologists, engineers, mathematicians, and computer scientists. Only when you bring a multi-disciplinary team like this together can you truly understand the immensely complicated issues that frame how people respond to particular situations in an evacuation process.

One of the major projects the Fire and Safety Engineering Group is working on is the study of the World Trade Center evacuation. The UK government, through the Engineering and Physical Sciences Research Council, which is the equivalent of

the NSF here in the United States, has given us a three-million dollar grant to understand the complexities of the World Trade Center evacuation. We're trying to interview 1,000 survivors to better understand what they went through. What formed their decision making? What hindered their evacuation? What aided their evacuation? And believe it or not, there are lots of fundamental questions that we still don't have answers to. Yet we are still building 100 story buildings all over the world. We don't understand fairly basic questions about how people evacuate and how building structures and the procedures for evacuation that we have in place can aid the evacuation process. That's what I do and that's why I'm here in New York.

MICHAEL EMMERMAN: My name is Mike Emmerman. I'm Director of the Special Operations Support group. I don't do anything technical, obviously; I'm a first responder. I hold positions with the NYPD, the Fire Department, and I'm the government liaison officer with American Red Cross, Today, however, I'm not representing any of those agencies; I'm representing myself.

I was there the morning of 9/11, trapped. That's why I'm here.

JIM DWYER: My name is Jim Dwyer. I'm a reporter with the *New York Times* and have been covering the World Trade Center, and the attempts to knock it down, since 1993.

Along with hundreds of my colleagues at the *Times*, I covered the events of September 11 and the things that went on afterwards. I was part of a group that tried to figure out what happened inside the towers that day. We discovered that there was a great deal of misinformation, misunderstanding, and just plain ignorance about what had happened inside those two buildings. Who escaped, how they escaped, why they escaped; who didn't; and how many people lived through the crashes but couldn't get out of the buildings—these seemed to be fundamental questions that needed to be answered, so a group of us worked for a better part of a year on a series of stories.

We sued the City of New York and the Port Authority of New York and New Jersey. Though we're still in court with them,

we've managed to get about 20,000 pages of printed records and hundreds of hours of tapes released that provide very concrete information about what went on. We've also interviewed several hundred people who were inside the towers that day. With one of my colleagues, Kevin Flynn, I wrote a book called *102 Minutes: the Untold Struggle to Survive Inside the World Trade Center*. That's why I'm here.

JOSEPH RYAN: Welcome to Pace. The panel discussion this afternoon focuses on the issue of preparedness and response.

What happened on September 11, 2001? I always like to anchor my discussions on this topic to a document that most of us are fully aware of but often forget about. It's called the U.S. Constitution. It says that "we the people of the United States, in order to form a more perfect union, provide for the common defense." Who was the common defense on September 11? Where was he? I know you're going to say, "who is he?" Tom Cruise? Top Gun?

Most of the expectations we have in society come from the media, from television, from movies. Somehow, we were all led to believe that on September 11, Top Gun was going to be there. I don't even want to believe that they were supposed to shoot down those airliners, but the reality is that that's what they were supposed to do. What happened? Where was the Air Force? Where was the Navy that day? There is a video of the Police Commissioner on the morning of 9/11 showing him screaming at his detective, "Call for air support." The detective looked at him, completely confused, "What's the number?"

That's the reality we face when trying to figure out what the 'common defense' is in our system of government. The answer, I believe, is that when we're talking about the common defense, about the general welfare of our people, we're talking about first responders.

I would like to thank each of our participants for agreeing to be here today. I have three broad questions and I'm hoping that somewhere in these panel discussions each of them will be answered.

First, what was the role of first responders prior to September 11, 2001? Second, what has changed for these organizations or individuals since then? And third, what still needs to be done to ensure appropriate response to future terrorist attacks?

MICHAEL EMMERMAN: I think you have to understand, first and foremost, that first responders in New York City—the police, the fire department, and EMS—respond to at least eight “disasters” a day. We have very, very capable responders in all those fields. So the question for today is, “what are we preparing for?”

Post 9/11 we are prepared for most things other than very large scale, broad-based issues. I don’t know how many of you remember the hurricane that flooded Annapolis. At that time, I was sitting in the command center watching the weather and listening to the broadcast. We were all waiting for that storm to turn. If it had turned one degree north, Manhattan, up to 14th Street, would have been under water because of the storm surge. Other parts of Brooklyn and Staten Island and Long Island would have been flooded as well. And we didn’t have an evacuation plan. It would have gotten really interesting if that had happened. Thank God it didn’t.

Fast forward to today. We’re in the middle of a supposed eleven year cycle on hurricanes and we still don’t have a real evacuation plan. But, there are hundreds of very serious, smart, forward-thinking people who work on this issue every single day. What we don’t have—and I am not representing any single agency, but working with everybody—is the money and the people power to implement everything we need to do. It’s not a mystery. Everybody knows what needs to be done. The question is, how do we get it done? Where do we get the resources to get it done? Where do we get the people?

I’ll give you one story. If we needed to evacuate 750,000 people, it would mean setting up hundreds of shelters. It would mean that each of the agencies I mentioned would need ten thousand volunteers at a moment’s notice. We don’t have ten thousand volunteers. Right now, we’re lucky if we have three or

four thousand that are truly committed to the process. Even if we trained ten thousand people to participate at a moment’s notice . . . if the entire city of New York were under the threat of a hurricane and people were evacuating, I don’t know how many of those ten thousand volunteers we’d lose. Remember the buses in New Orleans that didn’t get moved because there were no bus drivers to move them? Who’s going to drive the buses to move the people here in New York City? Who’s going to drive the trucks?

There are thousands of issues that need to be dealt with and they are being dealt with, I just don’t know when they’ll be resolved. Going forward, I think we all would like to know what the efficacy of the building is. What are the risks? What are we getting into?

What happened on 9/11 raised several issues. I, as a first responder, would not have been running into the building if I thought that the building was going come down on me. I share that attitude with a whole bunch of other people. We had no idea. Yes, many people were called heroes for running in, but it would have been a great thing to know that the buildings could possibly come down, which we didn’t. So, what has changed?

One of the things that changed was our understanding of our communication needs. I’ve heard arguments back and forth about the radio system—that we all need to communicate with each other on the same channel. I don’t know if you’ve ever been inside a command center or out in the field at a real disaster, but if everyone could talk to each other, that would be a disaster. Every agency has its own command and control. What’s required is that every command and control center in every agency can communicate with those of the other agencies. That doesn’t mean that I, as a single responder, need to be able to talk to a fireman or a police officer on the same radio. I may need to get instructions, and all three agencies may need [to share] instructions at the same time. But that’s rare. This whole argument about radios drives me nuts.

But yes, we now know that command and control needs to communicate better and have the resources to do that. The cell towers failed, communications failed, suddenly the three and a

half pagers and the two cell phones that I carried were worthless. So now we know we need a new system to communicate. All of these things need money, and they need people, and that's where we're headed.

JOSEPH RYAN: Thank you, Michael. Since you did raise the issue of buildings, I'm going to shift to Ed Galea. As this is your area of expertise, please share with us some of your insight.

ED GALEA: I think if you want to look at the situation, you need to consider what's expected of our first responders, what's expected of our buildings, and what's expected of our building occupants. If you go back to pre-9/11, not a single high rise building in the world was designed to accommodate a full scale evacuation. All the buildings that stand in New York today? You cannot evacuate the entire population of those buildings in a useful amount of time. The buildings simply are not designed for that. Our building strategies for high rise structures around the world were based on the "defend in place" strategy. When you had an incident on a particular floor, the well-engineered building was meant to contain the incident on that floor. All you would be expected to do is to evacuate the incident floor, the floor above, and the floor below. So our first responders had a relatively easy job. I mean, of course it's not an easy job; they have a very, very difficult job. But if you consider that that's the job they had to contend with, to make sure that those people on those three floors were evacuated, then they could go in, assist those people, and then tackle the incident. That's manageable.

But in the post-9/11 world, we've seen that there is a need to design our buildings so that we can expect people who are in those buildings to evacuate in a period of time that is deemed to be acceptable. That's the world we live in today. Do our buildings currently have that capability? No, they don't. Are we designing our buildings to meet that capability? Well, the building codes don't require it. And if the building codes don't require it, then I'm afraid architects and engineers won't necessarily build that sort of capability into the structures. So in the post-

9/11 world, are we better prepared for these types of incidents? I don't think we are.

I've traveled a lot of New York on your underground. Your subway system scares the living daylight out of me. If there was an incident like 7-7, that we had in London, would you be able to evacuate people from the underground stations in New York? Quickly? Efficiently? I don't know... I don't think so. With all those steel gratings around the entrances and exits? When I've raised this with people in the Fire Department, they say, "Well, we'll come down and we'll cut the barriers and let the people out." I don't think that's going to happen. I think it's going to be very, very difficult.

Are we better prepared in the post-9/11 world? I think we're beginning to ask questions and I think we're trying to find answers. No one is suggesting that we need to design buildings to withstand a 747 or an Avis 8380 smashing into the side of it. But I believe it's not beyond the wit of man to design buildings so that they will stand up long enough to allow people to get out. That's the key thing. What's the role for our first responders? Well, they're not going to be able to tackle these sorts of incidents, these fires. What I think their role is going to be is to help aid people to get out of the buildings quickly and efficiently. But the real emphasis must be on building design. We have to design our structures to enable people to take appropriate evacuation actions.

JIM DWYER: Joe mentioned before, "Where was Top Gun?" And I will tell you where Top Gun was. Top Gun was at the desk next to you. Top Gun was the woman in Human Resources who got everybody up out of their desks and into the stairwell. Top Gun was the man with the flashlight in his drawer, and a whistle, who walked up a flight of stairs with another man and pried open the doors where people were trapped.

On the top floors of the Trade Center, in both buildings, there wasn't a prayer in the world that a first responder was going to get to them. They were a thousand feet up. It was four hours walking with all the gear a typical firefighter wears. Ninety-seven and a half pounds of coat, boots, helmet, and ax.

The first responders got about thirty stories into the building. Some of them got a little higher. But for the most part, the people doing the response were the ones who are sitting here in this auditorium.

So on Ed and Mike's discussions about building design being so important, I'd like to echo that because it is clear that the tools for people to be saved in such a situation must be in the hands of the people who might be trapped. That means in the case of the World Trade Center, had the buildings been completely occupied, had there been twenty-five thousand people in each of those towers, instead of about seven or eight-thousand, given the rate of descent in those buildings, probably fourteen or fifteen thousand people would have died, not 2,749.

We're very fortunate that the attacks came on a day when the buildings were not as busy as they usually are, on an election day, the first day of school, you know, all that stuff that was thought to have impacted the occupancy. And at the time of day that the attacks did take place.

The second thing is that our emergency response culture in New York is both incredibly muscular but also muscle-bound. It, at times, lacks the kind of vision to go with the valor that I think would do us a lot of good. Let me give you an example. I have some transcripts from a police helicopter that was up in the air on the morning of 9/11. I'm going to read a little bit from that, and then tell you a little more about it: Helicopter says around 9:58, (this is just the moment when the South Tower, the first of the two buildings falls), "we just had a collapse of the South Tower. Advise any police, this is aviation."

Then the dispatcher says, "What building's coming down?" Then they go back and forth about which building was coming down.

"Number two has just collapsed." And then one of the chiefs on the ground says, "Give me an eyeball report on the other building." At that point, there's radio traffic, lots of traffic, then the voice comes through.

"Advise everybody to evacuate the area. About fifteen floors down from the top, it looks like it's totally glowing red on the inside, it's inevitable."

And the dispatcher says, "All right. From the fifteenth floor down it looks like the building is going to collapse. We need to evacuate everyone from the vicinity."

Another pilot jumps in from another helicopter, "I don't think this has too much longer to go, I would evacuate all the people within the area of that second building." Those are both NYPD transmissions from the NYPD helicopters.

The primary responders in the building that morning were firefighters. Yes, there were NYPD and officers from the Emergency Services Unit and some other officers, but primarily you had, by our estimation, about four hundred firefighters inside of the North Tower at that point.

Some of them heard from their own commanders that they were pulling out. Let me tell you, 9:58 the first building goes down; 10:28 the second building goes down. The question is what happens in those 29 minutes? During those 29 minutes, scattered groups of firefighters heard that it was time to pull back, but many others had no idea whatsoever. It's around the time of those helicopter transmissions.

I'm going to read a little bit here:

"Around that same time, another group had reached the nineteenth floor on their way down. Three court officers, Bachilari, Mascola, and Wender, who had gotten up to the fifty-first floor, were now turning back. They stepped out of the staircase and into the corridor. They could scarcely believe their eyes. The nineteenth floor was just as full then as it had been when they came up, still packed with firefighters from end to end of the hallway and down other corridors. So tight it would be tough to find a place to squeeze in alongside the wall with them. The place was carpeted with firefighters. Most were sitting and had stripped off their turnout coats. Helmets off, some were down to their blue t-shirts, maps of sweat blotting through the fabric and blazing the Fire Department shield. Officer Wender saw that some were lying down and there were axes leaned against the wall. Legs stretched out, arms resting against oxygen tanks. They could not be hearing, Wender thought, what we are hearing. They

guessed that there were at least one hundred fire fighters on the floor. "We're getting out of here," Officer Bachilari yelled. "We've been told we've got to get out of the building." "Alright," said one of the firemen, "we'll come down in a few minutes. We'll be right there."

And at that point, I think it's worth noting that through that entire morning there was no joint command between the NYPD, the FDNY, or the Emergency Medical Service. There was no interoperability between the command and control functions of each of those agencies. So the Chiefs in the Fire Department were not hearing from the Chiefs in the Police Department that the helicopters up in the sky operated by the NYPD [were saying] that this building was going to come down.

Now, it is a unique situation. But it's not hard to imagine other situations where the assets of one agency are finding out important things and there is no easy, reliable mechanism for sharing that information. The situation had existed before 9/11, going back, for sure, to the 1993 bombing. It was a primary focus of the after-action reports that were done then. There actually were radios bought during the 1990s that would allow interoperability. These radios, in most cases, never left the precinct offices or got out of the back of the Fire Department Battalion Chiefs' cars. The technology existed for good reliable communication; the management willpower to make it happen did not.

Embarrassment, I think, hardly begins to describe the emotion, or the pain and regret, over losing hundreds of firefighters who could have been pulled out had they known the building was coming down. I think that has prompted these two agencies to make some efforts to improve their interoperability, their willingness, and their instinct and culture about working together.

JOSEPH RYAN: Ed, you commented about the evacuation process for buildings, and how it traditionally was designed for one floor above, one floor below. What are we supposed to do right now with all the existing stock of buildings in New York City? How do we evacuate?

ED GALEA: One of the things that I'm very pleased has been introduced in New York is that at least you're doing drills, and you're training people to respond. I think until fairly recently you didn't have a requirement for full building turnout so that you could actually practice evacuating an entire building. Now people have the experience of going through that process. I think that's very important. One of the lessons of 9/11 is that so many people, even after the first incident, the '93 bombing, didn't know where the staircases were. They had no idea what it was like in the staircase, had no concept of how high off the ground they were, or how difficult it would be to travel down stairs. The drills and the exercises that were in place were a mockery. You'd just be sitting down at your desk and somebody would tell you, "the staircases are over there, and you've got to go to the staircase." I mean that is just absolutely ridiculous. For such large, complex structures you need to rehearse and you need to rehearse and you need to rehearse. I can't emphasize that enough. You have to train people. You don't want people in an emergency situation, in a life and death situation, to do something for the first time. That's a recipe for disaster.

JIM DWYER: I think, Ed, if I could jump in at that. One of the reasons that it's so important is that the people who went to work in the Trade Center, for instance, were people who made their money not from salaries, but from trades and other operations. So unless it was clear to them that they really needed to leave the building, leaving their desks meant they were going to lose a lot of money. So there were strong incentives to stay put unless you were persuaded that you were in big trouble.

ED GALEA: One of the major problems in evacuation practices around the world is this issue of occupant response time. It's the time from when the occupant is alerted to the fact that they have to evacuate to the time that they actually disengage from their normal activities and engage in the evacuation process. It's called the response time. And prior to 9/11, response time was huge. People just . . . the alarm goes off and people just wouldn't go. Because they're too busy making money, or they

think that it's a false alarm or another damn drill. In fact, what you find in a lot of evacuation situations is that the response time is actually longer than the travel time.

Immediately post 9/11, response times were quite short. Alarm goes off, everyone runs out of the building. Now, five years later, what's happening? Well, people are lapsing back into the same old mentality and taking longer to respond. We interviewed some survivors recently. They've moved to another building. And some of the folks who didn't want to talk to us formally in an interview did agree to have lunch with us. They were traders, and I was staggered to learn that even though they survived 9/11, they didn't know where the evacuation stairs were. This is the sort of mentality we've got to fight against. And this is why it's so important to do drills.

What do we do with the current building stock? There's not a lot we can do. We can train the occupants. We can emphasize to them the importance of understanding why it's imperative to evacuate. One of the things that staggered me was the amount of time people spent on their cell phones to call their families on 9/11. They were doing so while they were still in the buildings. They were not safe. They were in a place of danger and they stopped the evacuation process to call their family to say, "I'm okay, I'm evacuating." Well, you don't do that. You're not safe, you don't call anyone until you get out of the building and you're in a place of safety.

This is the sort of simple thing that we've got to reinforce with people.

Another thing that staggered me, a simple thing, was the number of shoes. Women's shoes were scattered throughout the staircases. Why? Well they were these ridiculous torture devices that women wear. These high heeled shoes. You can't evacuate down fifty flights of stairs wearing those shoes. So women took them off and evacuated in bare feet. Dumb idea ladies, don't do that. Because there could be debris, broken glass. If you're going to hurt yourself, you're going to delay your evacuation process. Either wear sensible shoes in the first place or have a sensible pair of shoes under your desk so that when you've got to evacuate, you just slip them on and evacuate. And if you are wearing

high heeled shoes, don't throw them away, hold on to them during the evacuation process.

So there are many simple things we can do to improve the evacuability of our current building stock. It's not just simply redesign. It's not, "what do we do with all the old buildings?" It's the people that are important. It's in the processes that we have in place that people can make a big difference in the success or failure of an evacuation. It's not simply the design of the structure. Sure, that's got a big part to play, but the people who use the buildings are probably the most important part of the evacuation system.

MICHAEL EMMERMAN: Prior to 9/11 there were very few organizations in New York that actually had evacuation packets for their employees. Many of the larger corporations now provide them to each and every employee. They're sort of Velcro-ed onto their desks. They contain little things, like an oral/nasal mask or maybe a flashlight. My experience has been, as Ed's has, that the longer we get away from 9/11, the more complacent we get. I work on the thirty-eighth floor of a forty-four story building and I know that there is a small portion of the employee staff that is still frightened and at the first sound of an alarm will leave the building. The majority, however, will sit there until they are *ordered* to leave the building. It takes that kind of urgency to get these people out. And they're still not performing as they should. Evacuation is not just leaving the building. If you work with a large organization or in any building that does this right, there are staging areas outside the building that you should report to. The reason for that is that if you report to a staging area, and someone can mark off that you have exited the building, there are then fewer people to look for. Because if they have a long list of people that they're still looking for, that's when the rescuers and responders come in and need to climb all those flights to find you.

If you are told to go to a staging area, go. Check in with somebody and let them know you're out of the building.

ED GALEA: I want to come back to a point you just made. Even in 9/11 some people actually had packs that their companies had provided them. And they didn't use them. They evacuated without their packs. So it's the training issue again. Training, training, training is the most important thing.

Whenever I travel, I carry a smoke hood with me. When I fly, I've got a smoke hood, when I stay in a hotel, I've got a smoke hood. Unfortunately, on this trip I couldn't bring it along because of the increased security, believe it or not. I feel naked without my smoke hood. And not only do I have a smoke hood, but my wife has one too and we train putting the damn thing on. Because it does no good to have a smoke hood if you've never put it on. These things are complicated.

JIM DWYER: Ed, what is a smoke hood like? Where do you get them?

ED GALEA: The smoke hood I have is a device that folds down to a pack about this big. It's a device that you pull over your head with a large visor that you can see through. There's a rubber seal to prevent the toxic gases coming up into the smoke hood and there's a filtration system. You've got to be careful which smoke hood you buy, because a lot of them on the market are rubbish. If they don't filter out carbon monoxide, you're wasting your time. So you want to make sure that the filtration system you've got is good enough to filter out carbon monoxide and preferably hydrogen-cyanide, as well. They're two of the major killers in fire gasses. The device I have will give me twenty minutes of breathable air. It's something that I practice putting on and I get my wife to practice putting it on. It mucks up her hair-do so she doesn't like it too much. But you need to be able to put these things on quickly and experience what it's like walking around with them on.

MICHAEL EMMERMAN: And I will advise you, that if you are buying one, buy two of them and take one, open up the envelope and try putting it on, practice with it. It doubles the cost, but what the hell? If you are buying it for a family or a group of

employees, you're buying a number of them. Buy extra ones that people can actually try on. Because the last thing you want to do in an emergency is stand there figuring out how to get this thing on your head. And it's really uncomfortable, so you have to know that, and know that you *can* breathe, because when you first put it on, there's a sense that you can't. So you need to practice with this stuff. It's not enough to have it, you have to know how it works. And some of them deteriorate over time, so you don't want to open the envelope of the primary. You buy another one and practice with that one.

JOSEPH RYAN: Jim, in the narratives you just shared with us, those powerful words from individuals who were trapped should've been monumental lessons learned. Yet I just heard Ed say that complacencies are coming back, response times are beginning to increase. How would you go about helping us get the message out?

JIM DWYER: I think you're going to see plenty of coverage of where we are five years later. That coverage is going to run the gamut from cultural and social issues and clinical stuff to behavioral things like increasing complacency. I think these anniversaries do make us revisit things that we may not want to think about, but they also have the benefit of reminding us of others. You know I'm a pretty well-informed guy and I didn't know about smoke hoods, so I'm glad to hear Ed and Mike talk about them. That might be the kind of thing that you'll end up seeing in the newspaper.

ED GALEA: Just to follow up, I've only just come back from a business trip to Korea and I was pleased to find that in my hotel room, the hotel had provided a smoke hood, a strong flashlight, and a harness cable that you could attach and lower yourself out the window if you had to. I really wouldn't want to do that, but all of this equipment was provided in the hotel room. Unfortunately, there were no instructions on how to use any of the stuff, which is probably more dangerous than not having it

there in the first place. But they're moving in the right sort of direction.

JIM DWYER: But in American hotels, you get HBO.

JOSEPH RYAN: Michael, one further question, then we'll open up to the audience. You mentioned a figure of ten thousand first responders being trained. Who's doing the training? How effective is the training?

MICHAEL EMMERMAN: There need to be ten thousand in each particular group. Let me give you a little bit of background.

In classic terms, the Police Department and Fire Department are always under-staffed. Period. That's before 9/11 and post 9/11; it's just what it is. And that's true in most cities of the United States; we're not an exception. Even when you go to the other volunteer groups, like the American Red Cross, they never ever have enough volunteers who are trained. Immediately post 9/11, there were, I think, something like fifteen thousand people standing in front of the Red Cross building at 150 Amsterdam Avenue in New York City, all wanting to volunteer. They wanted to do something. But there was very little that they could do because they weren't trained. Spontaneous responders are almost always useless and in some cases they can make it worse. So today we need ten thousand volunteers just for the Red Cross, trained volunteers to handle an evacuation of 750,000 people. That's just on the Red Cross piece, it's not including the Police Department, or the Fire Department, or EMS. It's just that one piece. Today in New York City we have approximately four thousand properly trained volunteers that we can count on. So, the training is getting done. We're out there trying to find people to add to that cavalry, but this is a very slow process. And you will, over time, lose people unless you use them. So, that's the ten thousand.

JOSEPH RYAN: I'll just throw in one comment. I just returned from a conference sponsored by Homeland Security and Ed was talking about training and training and training. Homeland

Security guestimates now, with FEMA, that there is a need for eleven million first responder education training programs to go on. And when you mention American Red Cross, all these volunteers lined up to help, but no one knows how to help.

Let me ask the audience. Are there any questions for the panelists?

AUDIENCE: I'm curious about why you have not talked about a radiological disaster, and what's necessary to cope with that, for both first responders and the public. Thank you.

MICHAEL EMMERMAN: I love this one. Okay, you have nuclear, biological, chemical, and improvised explosive devices. You have hurricanes, fires, and floods, and a bunch of other disasters. The least likely is radiological and the hardest to prepare for is radiological. You work on a scale of most likely, most probable, when you're trying to train people to prepare. Preparing for a radiological disaster requires an enormous amount of money and equipment. I wish we had it, I actually do. And I wish we could train more than one elite team in a location on exactly what to do and how to prepare for that. The fact remains that the money that's spent within a bureaucracy, within a democracy, is spent on a scale from what's most likely to happen to what's least likely, and what's going to happen soonest.

ED GALEA: I think the CBRN scenarios—that's Chemical, Biological, Radiological, and Nuclear—are truly nightmare scenarios. We've been training our responders to address these situations, but if the bad guys can actually deliver weaponized chemical agents in our big cities, in our underground systems, I think we're going to have a really big problem. We've been training our first responders to cope in London. We've equipped our fire services with CBRN equipment suits, we've instigated decontamination units, last year we had a major exercise in the city of London where we actually exercised our joint forces—our police and our fire fighters and ambulance services—to respond in fully turned-out equipment. And we learned a lot from that.

It didn't go very well, but we learned a lot. We need to do more of that, but there are a number of issues that we still need to address. And not the least of which is that you can have a first responder in the correct equipment, but the physiological assault on the first responder, when they're wearing this CBRN kit, is fairly dramatic. How much can they do before they have to disengage and cool down? Re-hydrate and cool down are big issues. As I say, it's one of the nightmare scenarios.

MICHAEL EMMERMAN: May I add one thing to that? We've had several drills here in the New York City area that you may not be aware of where we do this similar kind of work with all of the agencies. My issue is that we just don't have enough of them and we just don't have the money to support a broad scale kind of training.

AUDIENCE: We've heard there are a lot of problems, that there's not enough money, and not enough people to respond. But what if a disaster does come? Something like 9/11, or something like Hurricane Katrina? What could be done? Is the only answer that just more people will be lost, just because there's not enough money and volunteers?

MICHAEL EMMERMAN: That's a really tough one. The bottom line is that if there were a very broad scale issue, like a nuclear attack, there would be incredible chaos. No one has a concept of how that would look. The fact remains that in a situation like that, we in New York City, though we normally stand on our own, would be getting help from the outside dramatically. We would need it. And it would take days to get. Even if everyone was all set to go, it would take days. There is no easy answer to that. Even in New York City, if we had all of the numbers of people that we needed and all of the equipment and all of the training, having been involved with Emergency Response for now twenty-seven years, I will tell you that something's going to go wrong, period. It's not going to work the way you thought it was going to work. So, I don't have an easy answer for that.

JOSEPH RYAN: I would just like to add a sense of optimism. Homeland Security is less than five years in existence and they are constantly learning lessons. One of the lessons that we have learned, which Ed alluded to, is training, training, training. We have to get the message out. In the next couple days, as Jim was saying, there'll be tons of media coverage on what has happened since 9/11, and what we have learned. I think we all need to listen. Just be optimistic.

JIM DWYER: Don't be afraid. We can live through disasters, people do. In the World Trade Center, 99 percent of the people below the point where the planes hit, escaped and survived. They didn't have training, they didn't have equipment, they had good sense and they took care of each other and they made sure they got out. You're going to be able to do that if the time comes for you. Have faith. Don't let fear paralyze you. There's too much fear-mongering in this country.

AUDIENCE: It's my understanding that the city fire codes and building codes did not apply to the World Trade Center. Are there any folks here who can talk about whether they did apply, and how much more time would have been gained before the collapse happened had the buildings been up to code?

ED GALEA: I don't know the New York code well enough. You're talking about the structural elements? The failure in the design to cope with the type of incident would have been the same even if the buildings had followed the New York code, in terms of the structural components. I'm not sure about the fire-proofing, if there would have been more requirements to have better fire-proofing, but I don't think it would have made a lot of difference. There are some fundamental problems with the way the building was designed, which I think would have been committed even on the New York code. For example, the staircases, in my opinion, were too closely [positioned]. If you're going to have one cataclysmic event that's capable of taking out the staircase, it's likely all three of them would have been taken out. And so there were some fourteen hundred people who lost their lives simply

because a staircase didn't remain intact from top to bottom, in the North Tower at least.

Another issue, I think, is the construction of the staircases. I'm not sure if New York code required them to be made out of concrete. They were built, essentially, out of plasterboard. At least that is what we call it in the UK. And really, that's a good, fireproof material, but it has no resistance to blasts or that type of incident. I don't know if that would have been any different under the New York building code.

The other point is that, as Jim pointed out, had the buildings been fully occupied with twenty-five thousand people . . . we've simulated the evacuation process under that scenario and it would have taken, even with the three staircases intact, almost three hours to get those people out. From our calculations, something like eight thousand people would have lost their lives in the North Tower alone and that's if the staircases had remained intact.

JIM DWYER: Let me just say a couple things about the code. One of the most shocking things I learned in my research was how paper-thin and meaningless the codes ultimately are. They're not based on real-world situations. Let me give you an example. They're supposed to fire-test the metal that goes into these buildings, the steel. They had to test a seventeen-foot length of steel to see if it could stand up for a certain number of minutes to a blast furnace. Well they found out that a seventeen-foot piece of steel could. Here's the catch: they didn't make the Trade Center with 17 foot pieces of steel. They made it with thirty-five- and forty- foot pieces of steel. The difference is substantial. The fire tests that were done on the true length of the steel weren't done until 2003 or 2004, after the buildings had fallen down. And the steel stood for the amount of time it was coded to stand.

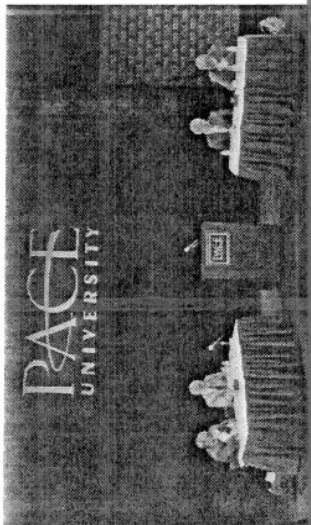
The Port Authority took the position in 1965 that they were going to meet or exceed the New York building codes, even though they weren't required to. In fact, they did not meet the codes in all respects. Most importantly, it turned out they were short one staircase. They were supposed to have had four staircases in the building and they only had three. Had the fourth

staircase been in the building, in each of the buildings, had it been out of the line of impact, no doubt more people would have survived.

Okay, so that's the end of the code.

JOSEPH RYAN: Ed, Michael, and Jim, on behalf of President David Caputo and the Pace University community, thank you for coming.

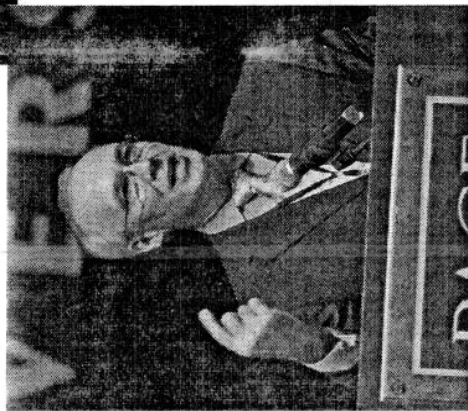
PANEL ONE PARTICIPANTS



Left: The Michael Schimmel Center for the Arts at Pace University, site of much of the Aftershock conference.



Right: Jim Dwyer, *New York Times* reporter and author of *102 Minutes: The Untold Story of the Fight to Survive Inside the Twin Towers*, and Michael Emmerman, Director of The Special Operations Support Group



Left: Panel Moderator Joe Ryan, Professor of Criminal Justice, Pace University

DR. MICHAEL DOLFMAN currently serves as Regional Commissioner for the United States Bureau of Labor Statistics in New York City. In this position, he supervises and directs all economic analysis and information services for the Bureau throughout the nation, and is responsible for activities in regional offices located in Boston, Philadelphia, Atlanta, Dallas, Kansas City, Chicago, and San Francisco, as well as in New York.

Dr. Dolfman received his undergraduate degree from Albright College; a Master's degree from the University of North Carolina; and a Ph.D. from the University of Pennsylvania. He has published numerous articles in academic journals. Two, written for the Bureau of Labor Statistics, have achieved national and international recognition: "9/11 and the New York City Economy: A Borough-by-Borough Analysis" and "100 Years of Consumer Spending: A Comparison of the Nation, New York, and Boston."

JIM DWYER was a member of the team at *New York Newsday* that won the Pulitzer Prize for sports reporting in 1992. In 1995, again as a columnist with *Newsday*, he received the Pulitzer Prize for Commentary. At present, he is a reporter with the *New York Times*.

Dwyer is the author or co-author of four books. His latest, *102 Minutes: The Untold Story of the Fight to Survive Inside the Twin Towers*, co-written with Kevin Flynn, was a 2005 National Book Award finalist. With other reporters at the *Times*, Dwyer conducted an intensive investigation of what happened inside the Twin Towers at the World Trade Center before they collapsed. The book documents extraordinary but little-known rescues, including the work of Pablo Ortiz and Frank DeMartini, who rescued scores of people from behind jammed doors on the upper floors of the north tower.

A native New Yorker, Dwyer wrote columns for *New York Newsday* and the *New York Daily News* before joining the *Times*. He earned a bachelor's degree in general science from Fordham University in 1979 and a Masters degree in journalism from Columbia University in 1980.

MICHAEL EMMERMAN graduated from C.W. Post with a concentration in international finance. Mr. Emmerman serves as director of the Special Operations Group, a not-for-profit organization that provides research and technical advice to law enforcement and public safety agencies. He has assisted at many disaster scenes including the TWA Flight 800 recovery operation and at the World Trade Center on September 11, 2001. He is also a trustee at Long Island University.

PROFESSOR ED GALEA is the founding director of the Fire Safety Engineering Group (FSEG) at the University of Greenwich, where he has worked in fire safety research since 1986. His work began after the tragic Manchester Boeing 737 fire, when he was commissioned by the U.K. Civil Aviation Authority to simulate the spread of fire and smoke in the disaster. Since then his research has expanded to include the modelling of evacuation, people movement, fire/smoke spread, combustion and fire suppression in the built environment, rail, marine and aviation environments. Professor Galea is the author of over 100 academic and professional publications related to fire. He serves on a number of national and international standards and safety committees concerned with fire and evacuation. His research and consultancy activities have been supported by a wide range of European and North American organizations.

ALICE GREENWALD is the Executive Vice President for Programs, and Director of the Memorial Museum for the World Trade Center Foundation. Prior to that, she was the Director of Programs for the United States Holocaust Memorial Museum.

From 1986-2001, Greenwald was the principal of Alice M. Greenwald Museum Services, providing consulting expertise to a variety of clients. She served as guest curator for the Historical Society of Princeton's exhibition, "Old Traditions, New Beginnings: 250 Years of Princeton Jewish History" and authored the historical essay in the companion catalogue publication published in 2002. Her other clients included the Baltimore Museum of Industry, the Pew Charitable Trusts, and the National Museum of American Jewish History.