# ATC NEWS BULLETIN

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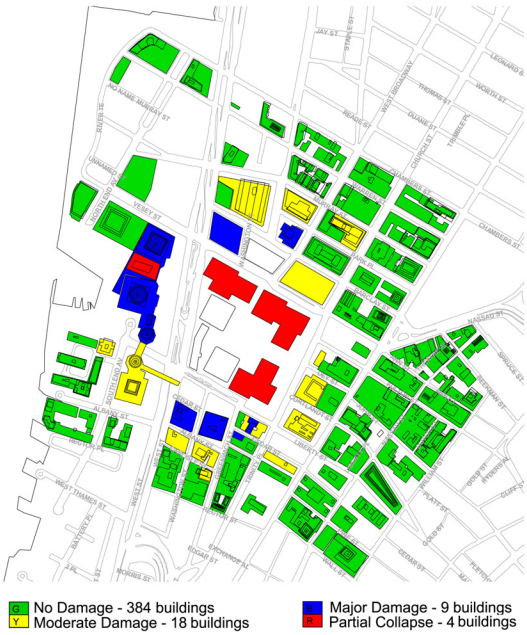
## ATC-20 PROCEDURES USED TO EVALUATE DAMAGED BUILDINGS NEAR WORLD TRADE CENTER

Within days following the September 11 terrorist attack on the World Trade Center buildings in New York City, the Structural Engineers Association of New York (SEAONY) organized an effort to provide assistance to the City of New York in assessing damage to buildings within a few blocks of the collapsed towers. Following the recommendations of Guy Nordenson of Guy Nordenson & Associates, the evaluations were carried out using the ATC-20 Procedures for Postearthquake Safety Evaluation of Buildings originally developed and published by ATC in 1989.

The entire process moved forward quickly. By Friday, September 15, ATC had shipped to New Jersey 200 copies of the ATC-20-1 Field Manual. On Saturday, following initial discussions between SEAONY, the New York City Department of Buildings (DOB) and the Department of Design and Construction (DDC), the Mayor asked SEAONY to proceed with the ATC-20 evaluations. SEAONY divided the area bounded by the Hudson River and Williams Street and Chambers and Rector streets, into fifteen sectors (excluding the central area around the World Trade Center) and organized fifteen 3-to-6-person teams to conduct the evaluations. The SEAONY teams also used daily fly-over high-resolution photos to check for roof debris and damage.

View of the World Trade Center after terrorist attack, prior to collapse.
C. Thornton photo

The evaluation process was chronicled by Guy Nordenson, as follows: "From Monday noon to Tuesday 5 pm the 15 teams inspected 406 buildings. All the information was then entered into a database and geographic information system at Princeton University. By Wednesday the group of Princeton graduate students had created a list and map of damaged buildings, which were used to identify 30 or so buildings requiring a closer inspection. On Friday (September 22) four new teams were sent into the field, each with two engineers from the private sector and two from the DOB, to carry out the inspections. Each team was given the results of the first round and new detailed checklists, prepared by Brett Schneider of Guy Nordenson & Associates and Mike Tantala of Princeton. The inspections were completed in one day, climbing lots of stairs! The reports were collected and reviewed by the four teams, and Friday night the DOB deputy commissioner agreed on the number and ratings. In one week the SEAONY group had completed the task: 384 or so buildings were OK, 13 were badly damaged and 18 required limited facade repairs (see map)."




ATC-20 building evaluation results after WTC collapse. Source: New York City DOB/DDC/SEAONY

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## NEW ATC PROJECTS

### *Phase II of San Francisco Community Action Plan for Seismic Safety (CAPSS) Now Underway*

San Francisco skyline.
Courtesy of San Francisco Convention & Visitors Bureau

San Francisco's Community Action Plan for Seismic Safety (CAPSS), initiated by the Department of Building Inspection in the year 2000, is a wide-ranging program of studies and recommendations involving City staff, citizens, and experts that will extend over the next several years, and that will develop a basis for earthquake risk reduction and response policy decision-making by the City and County of San Francisco. It will include studies to improve the understanding of the earthquake risk facing San Francisco, and will include the exploration of means to reduce this risk, through building and infrastructure improvement programs, postearthquake response and repair, and public education.

**Phase I** of CAPSS, carried out by ATC under contract to the Department of Building Inspection, was an initial effort to define the Phase II tasks. Phase I involved preliminary evaluations of the seismic risks in San Francisco and public meetings to obtain input on proposed approaches for reducing these risks. The Phase I findings are documented in the ATC-52 report, *Community Action Plan for Seismic Safety (CAPSS), City and County of San Francisco, Plan Description and Needed Services*, which was completed and submitted to the Department of Building Inspection in late 2000.

**Phase II** of CAPSS (the ATC-52-1 project) commenced in September 2001. Under this phase, which will be completed within the next two years, ATC will carry out the following tasks:

- Conduct a city-wide earthquake vulnerability assessment to determine the significant impacts that various scenario earthquakes will likely have on the buildings and people of San Francisco;
- Formulate community-backed guidelines and criteria for evaluating, and subsequent repairing or demolishing, earthquake-damaged buildings; and
- Identify and define other practical, achievable, and community-backed seismic hazard mitigation programs.

The project is being carried out by a multidisciplinary team of earthquake engineers, architects, economists, and public relations specialists, including: David Prowler of Prowler Inc. (Project Manager), Laurence Kornfield of the San Francisco Department of Building Inspection (Project Officer), Charles Scawthorn and Hope Seligson of ABS Consulting, William Holmes of Rutherford & Chekene, Elizabeth Seifel of Seifel Consulting, Inc., Kay Wilson and Marcie Adams of Public Affairs Management (PAM), Henry Chang of Structus, Inc., Mary Comerio of ARCH Research, Ramin Golesorkhi of Treadwell & Rollo, and Richard Holguin (formerly of the Los Angeles Department of Building & Safety).

### *ATC and NIST to Develop an Industry Roadmap for NEHRP-Funded Problem-Focused Research and Development in Earthquake Engineering*

In September 2001 ATC was awarded a contract by the National Institute for Standards and Technology (NIST) to develop an Industry Roadmap for NEHRP*-Funded Problem-Focused Research and Development in Earthquake Engineering (the ATC-57 project). The process will consist of: (1) an initial effort to obtain input from industry representatives on short-term and long-term needs, and solution approaches to meet those needs; (2) a focused Industry Roadmapping Workshop, involving 30 to 40 invited earthquake-hazard-reduction specialists, to define time-based goals and program requirements; and (3) a report preparation and review effort to define and document the detailed industry roadmap, based on input received at the Workshop.

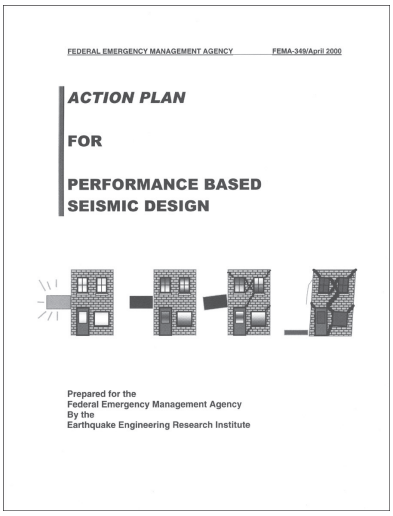
The roadmap is expected to address and make recommendations regarding issues, such as the overall goals and objectives of the program in the context of NEHRP agency missions; the expected outcome of the program in terms of loss reduction; critical research and development areas; how existing NEHRP experimental facilities would be used to support the research and development program; how industry will leverage funding (cash or in-kind) from NEHRP; how industry will partner with codes and standards organizations and academic researchers in carrying out the research and development program; a mechanism for establishing annual research and development priorities; a mechanism for independent review and broad dissemination of research and development results; and a mechanism for coordinating research and development between the NEHRP agencies.

*National Earthquake Hazards Reduction Program

### *Candidates Sought for Steering Committee to Develop FEMA-Funded Performance-Based Seismic Design Guidelines*

The Applied Technology Council is seeking candidates for a newly established Steering Committee to oversee and guide a recently initiated effort funded by the Federal Emergency Management Agency (FEMA) to develop Performance-Based Seismic Design Guidelines. The ATC-58 project will consider and build on the FEMA-349 report, *Action Plan for Performance-Based Seismic Design*, which was developed by the Earthquake Engineering Research Institute in the year 2000, and proposes a 10-year, multi-million-dollar research and development plan to create and implement comprehensive performance-based seismic design guidelines for both new and existing construction. It is anticipated that the project products will include structural performance products, nonstructural performance products, risk management products, performance-based seismic design guidelines, and a stakeholders guide. Though the project focus is on the development of performance-based seismic design guidelines, it is anticipated that much of the technology developed will be relevant to other extreme loads, including blast, fire and severe winds.

ATC will engage a 12-person Steering Committee composed of leading representatives from design, research, regulation and stakeholder groups. The role of the advisory Steering Committee is to oversee and guide all aspects of the project, including recommending needed products, identifying timetables for various activities, and reviewing documents produced under the project. All Steering Committee members will be engaged as consultants to ATC. The composition of the Steering Committee is expected to change over time, depending on project focus and personnel availability. During the 18-month initial phase of the project, it is anticipated that the Steering Committee will meet three times, two of which will be in conjunction with workshops.




Steering Committee members will be selected by the ATC-58 Project Management Committee, in consultation with the FEMA Project Officer and the FEMA Technical Monitor. The goal is to create a Steering Committee that includes broad expertise from different regions of the country, and different professions involved with or benefitting from performance-based design, including architects, building officials, building owners, developers, engineers (specialists in the seismic design of structural and nonstructural components), insurers, lenders, researchers and risk managers. In addition, to ensure that the products are relevant to performance-based design for other extreme loads, consideration is also being given to the inclusion of blast specialists and fire specialists.

**Persons interested in being considered as candidates for the ATC-58 Steering Committee should submit an expression of interest not to exceed four pages in length (a two-page letter and a two-page resume) to ATC by December 31, 2001.** If more than four pages are submitted, only the first four pages will be considered. The names of candidates who are not selected to serve on the Steering Committee will remain on file at ATC and those persons will be considered for possible involvement in other aspects of the project.

The ATC-58 project is being led by a six-person Project Management Committee that includes Christopher Rojahn of ATC (Project Executive Director), Ronald Hamburger of ABS Consulting (Project Technical Director), and Jack Moehle of the University of California at Berkeley. (The three other members have not yet been identified.) The FEMA Project Officer is Michael Mahoney and the FEMA Technical Monitor is Robert Hanson.

### *ATC and DSA to Develop Report on Seismic Safety Inventory of California Public Schools*

At the request of the Division of the State Architect (DSA), California Department of General Services, ATC is preparing a report summarizing the results of a recent seismic safety inventory of California Public Schools, grades K-12, and recommending future mitigation actions (the ATC-59 project). The seismic inventory was mandated by California Assembly Bill 300, which requires the Department to inventory schools of concrete tilt-up construction and those with non-wood-frame walls that do not meet the minimum requirements of the 1976 *Uniform Building Code*. The report is to be submitted to the California Legislature and the Governor by December 31, 2001. Dennis Bellet of DSA is the Project Officer.

## UPCOMING ATC SEMINARS

### *Call for Abstracts for Seminar on Response Modification Technologies for Performance-Based Seismic Engineering*

ATC and the Multidisciplinary Center for Earthquake Engineering Research (MCEER), State University of New York at Buffalo, have issued a call for abstracts for the ATC-17-2 *Seminar on Response Modification Technologies for Performance-Based Design*, which has been scheduled for May 30-31, 2002 at the Hyatt Regency Los Angeles. The seminar will focus on seismic isolation, energy dissipation, active and semi-active control systems, and the use of new materials in structural response modification. The purpose of the two-day seminar is to present a comprehensive picture of the state of practice, current research, and future directions on response modification technologies for performance-based seismic design.

The seminar program has been developed for design professionals, regulators, researchers, manufacturers, contractors, owners, and facility managers. The program will include papers on planned and completed applications, including new structures as well as rehabilitated existing structures – corporate facilities, hospitals, data centers, emergency operation centers, large bridges, and other structures. Themes and topics to be addressed include:

- case studies of current and future applications summarizing project information and important issues,
- summaries of recent research,
- future directions in the development and application of devices and systems, and
- emerging technical and policy issues, including barriers to implementation.

The Seminar Steering Committee is seeking papers pertaining to the above themes and topics. Verbal presentations are planned, but the Steering Committee is also considering the possible inclusion of poster sessions. **Persons wishing to present a paper at the seminar are requested to submit a one-page abstract (not more than 250 words in length) of their paper to ATC on or before January 15, 2002.**

Authors of accepted abstracts will be notified by February 15, 2002. Written versions of papers presented at the seminar, not to exceed 12 pages in length including all figures and tables, will be due April 30, 2002, in order to permit the publishing of the Seminar Proceedings for distribution on the opening day of the seminar.

An exhibition space is planned and exhibits are encouraged. Field trips are also planned. See the ATC web site (www.atcouncil.org) for additional information, including seminar registration forms and registration fees.

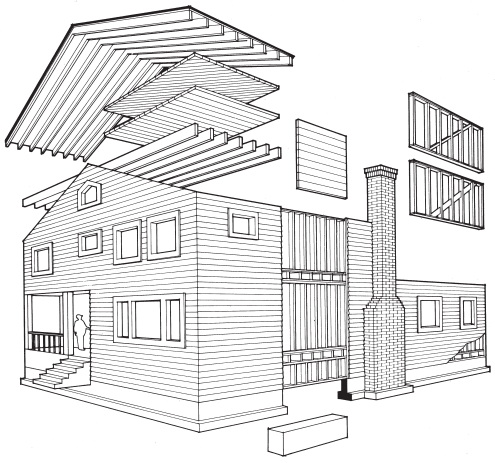
### *ATC-50 Seminar on Seismic Evaluation, Grading, and Rehabilitation of Single-Family Wood-Frame Dwellings*

The ATC-50 *Seminar on Seismic Evaluation, Grading, and Rehabilitation of Single-Family Wood-Frame Dwellings*, has been scheduled for January 17, 2002 in the City of Commerce (near Los Angeles). The purpose of the one-day seminar is to provide participants with detailed information about the ATC-50 seismic evaluation, grading and rehabilitation procedures, including an overview of the pilot testing phase of the project in which 500 buildings were evaluated and graded using preliminary versions of the procedures. Fifty homes are being retrofitted.

The seminar program has been developed for building inspectors, contractors, structural design professionals, building officials, and representatives of insurance companies and financial institutions. Topics to be addressed include:

- the ATC-50 *Seismic Evaluation and Grading Procedures*, which enable a certified inspector to evaluate a detached single-family wood-frame dwelling and assign a seismic grade, ranging from A to D,
- the ATC-50-1 *Seismic Rehabilitation Guidelines*, which provide prescriptive methods, simplified engineering methods, and fully engineered methods to enable homeowners to improve their seismic grade, and
- incentives for homeowners to participate voluntarily in the program (ATC-50-2 report, *Safe at Home in Earthquakes: A New Earthquake Safety Program*).

The seminar registration fee is $150 ($120 for ATC Subscribers) and covers copies of the ATC-50, ATC-50-1, and ATC-50-2 reports, luncheon, and coffee breaks. Visit the ATC web site (www.atcouncil.org) for additional information.



Exploded view of typical pre-1940 California single-family wood-frame dwelling showing typical structural systems (from Lagorio, Friedman, and Wong, 1986).