

SEISMIC SAFETY COMMISSION

1755 CREEKSIDE OAKS DRIVE, SUITE 100
 SACRAMENTO, CA 95833
 (916) 263-5506
 (916) 263-0594 FAX
 INTERNET: www.seismic.ca.gov



Seismic Safety Commission
 Minutes of Regular Meeting/Workshop
 April 12, 2001
 Marines' Memorial Club
 609 Sutter Street
 San Francisco, California

Members Present

Donald O. Manning, Chairman
 Daniel Shapiro, Vice Chairman
 Andrew Adelman (arr. 10:15 a.m.)
 Jerry C. Chang
 Bruce R. Clark
 Scott P. Haggerty
 Douglas E. Mochizuki
 Stan Y. Moy (arr. 10:28 a.m.)
 Ashok S. Patwardhan
 Patricia Snyder

Members Absent

Senator Richard Alarcon/Chris Modrzejewski
 William L. Gates
 Jeff Johnson

Staff Present

Richard McCarthy
 Abby Browning
 Henry Sepulveda
 Henry Reyes
 Fred Turner

I. CALL TO ORDER/ROLL CALL

The meeting of the Seismic Safety Commission was called to order by Chairman Donald Manning at 9:02 a.m.

II. CHAIRMAN'S REMARKS

Chairman Manning welcomed all meeting attendees. He thanked the staff for their hard work arranging the meeting and expressed appreciation to the Marines' Memorial Club for hosting the meeting.

III. APPROVAL OF MINUTES**March 8, 2001**

ACTION: Commissioner Shapiro made a motion, seconded by Commissioner Chang, that:

The Commission approve the minutes of the March 8 meeting as proposed.

- * Motion carried, 8 - 0 (Commissioners Adelman and Moy absent during voting).

VI. LEGISLATIVE UPDATE (Out of Order)

Director of Legislation Henry Sepulveda reported that the Legislative Committee met on March 26 and reviewed bills of interest to the Commission. He drew attention to the chart in the meeting packet showing the status of the seven Commission-sponsored bills.

Mr. Sepulveda then reviewed other bills and positions recommended by the committee and staff.

AB 656 (Chan)

Mr. Sepulveda said AB 656 would create a special exemption for Alameda County hospitals from NPC-3 requirements provided they comply with 2002 nonstructural requirements by January 1, 2003. He noted the committee recommends the Commission oppose this bill.

ACTION: Commissioner Haggerty made a motion, seconded by Commissioner Mochizuki, that:

The Commission adopt a “watch” position on AB 656.

Commissioner Haggerty explained that Alameda County hospitals are working hard to comply with SB 1953, but their efforts are hampered due to lack of funding.

Commissioner Mochizuki expressed his opinion that the Seismic Safety Commission’s focus should be on public safety rather than economics.

Commissioner Haggerty suggested instructing the staff to work with Assembly member Wilma Chan on amendments. He noted the Commission can decide to take a definite position on AB 656 at the May meeting.

- * Motion failed, 4 - 4 (Commissioners Clark, Patwardhan, Shapiro, and Snyder opposed; Commissioners Adelman and Moy absent during voting).

ACTION: Commissioner Mochizuki made a motion, seconded by Commissioner Snyder, that:

The Commission adopt an “oppose unless amended” position on AB 656.

- * Motion carried, 7 - 1 (Commissioner Haggerty opposed; Commissioners Adelman and Moy absent during voting).

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Other Bills

Mr. Sepulveda reviewed other bills related to hospital seismic safety. He noted AB 832 (Corbett) is a bill that would enact technical clean-up of AB 2194 relating to the use of temporary facilities during seismic retrofitting operations. AB 1156 (Aroner) would authorize the issuance of general obligation bonds to finance hospital construction for the purposes of complying with SB 1953. Mr. Sepulveda said the committee recommends that the Commission support both bills.

Mr. Sepulveda noted SB 265 (Johnson) is a spot bill relating to a five-year extension of the 2002 requirements. The committee recommends a “watch” position for the time being.

Mr. Sepulveda said SB 842 (Speier) repeals the 2008 compliance deadline, and the committee recommends opposing this bill. Commissioner Shapiro expressed his opinion that the Seismic Safety Commission should resist any effort to undo or delay the Hospital Seismic Safety Act.

Mr. Sepulveda noted the committee recommends a “watch” position on SB 928 (Dunn), a bill encouraging the state to enter into partnership with hospitals to provide funding. Commissioner Clark asked why a “support” position is not being recommended for SB 928. Mr. Sepulveda replied that the bill sponsors expect to make significant amendments, including addition of a provision for a general obligation bond to provide a funding source.

Mr. Sepulveda drew attention to his written report for descriptions of other bills related to seismic safety and recommended positions. Commissioners had no questions or comments on SB 486 (Speier), SB 384 (Burton), AB 940 (Keeley), AB 1182 (Calderon), AB 1384 (Cox), SB 709 (Alpert), AB 1447 (Frommer), AB 1632 (Pescetti), AB 419 (Dutra), AB 1171 (Dutra), AB 1415 (Leach), SB 356 (Johannessen), AB 1543 (Firebaugh), SB 353 (Alpert), AB 1478 (Salinas), AB 233 (Romero), AB 1432 (Corbett), SB 122 (Dunn), SB 355 (Escutia), and ACR 34 (Corbett).

Commissioner Shapiro recommended opposing AB 484 (Runner), a bill that would exempt community college facilities from the Field Act. Mr. Sepulveda said the committee did not recommend any position on AB 484, but the staff recommends opposition.

ACTION: Commissioner Haggerty made a motion, seconded by Commissioner Clark, that:

The Commission adopt the positions recommended by the staff on all bills other than AB 656.

* Motion carried, 8 - 0 (Commissioners Adelman and Moy absent during voting).

IV. COMMITTEE REPORTS

Budget and Planning Committee

Mr. Sepulveda distributed copies of the most recent budget report and noted the budget appears to be on track. He said the Commission projects expenditures of \$821,000 this year out of its total budget of \$821,000. One vacant staff position will be filled in April, and another vacancy

will be advertised soon; the Commission plans to fill both positions by the end of this fiscal year.

Commissioner Patwardhan expressed concern about the Commission's staff shortage and workload. Executive Director Richard McCarthy said he would discuss staffing in more detail as part of his report.

Proposition 122 Oversight Panel

Mr. Henry Reyes recommended that the Commission approve the report assessing the effectiveness of Proposition 122 products and making recommendations for the future. He said the final draft of the report was approved by the Proposition 122 Oversight Panel at its March 13 meeting, and the report will be printed by the end of the fiscal year.

ACTION: Commissioner Chang made a motion, seconded by Commissioner Snyder, that:

The Commission approve the report as recommended.

- * Motion carried, 7 - 0 (Commissioners Adelman, Haggerty, and Moy absent during voting).

Commissioner Shapiro complimented the staff on the report.

Commissioner Patwardhan asked about distribution plans. Mr. Reyes said the Commission plans to print 500 copies to start and more as needed. He noted the document will be sent to members of the Legislature, heads of state agencies, and interested parties. Mr. McCarthy added that the report will also be made available on the Commission's Web site.

Commissioner Patwardhan asked what next steps are being planned to continue the work begun under Proposition 122. Commissioner Shapiro stated that the Commission hopes publication of the report will stimulate further action and progress. Mr. McCarthy said the staff is in the process of developing a budget change proposal to take Proposition 122 outreach activities on the road. Mr. Reyes added that the Commission will continue to work with the California Building Officials (CALBO) to sponsor seminars and training. In addition, PARMA, an organization for risk managers, will be reproducing copies of the risk management product on CD for its members.

Mr. Reyes observed that there is considerable interest in furthering the work begun under Proposition 122, and Senator Speier's bill for a \$600 million general obligation bond will assist in that effort.

Ad Hoc Committee on Gas Shut-Off Valves

Chairman Manning informed the Commission that Commissioner Moy is proposing an 18-member committee to look at gas shut-off valve issues. Because this item was not noticed on the April agenda, it will come to the Commission for approval at the May meeting. Meanwhile, he

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noted, Commissioner Moy has authorization to move ahead.

V. EXECUTIVE DIRECTOR'S REPORT

Nisqually Earthquake

Mr. McCarthy noted that at the March meeting, the Commission voted to authorize activating the emergency earthquake investigation account to send a team to the Seattle area to study the effects of the recent Nisqually earthquake. However, because it appears there are no major policy issues arising from that earthquake that would impact California, the staff recommends holding off on that investigation.

Staffing

Mr. McCarthy reported that a new engineering geologist, Mr. Robert Anderson, will join the Commission staff on April 23. The geologist previously worked for the California Energy Commission and has a background in lifeline issues. Mr. McCarthy said advertising and recruitment for a new planner will begin next week, and the Commission hopes to have that position filled by the end of the fiscal year.

Mr. McCarthy noted the staff is working on a budget change proposal to add an office technician position to the staff for the 2002-03 fiscal year.

May Meeting Plans

Mr. McCarthy said a two-day Commission meeting is planned for May 9 and 10 for the primary purpose of finalizing revisions to the *California Earthquake Loss Reduction Plan*. He added that most of the working groups have already met and made revisions to the key elements of the *Plan*, and all remaining working group meetings will be completed by the end of April.

Federal Emergency Management Agency (FEMA) Audit

Mr. McCarthy reported that the FEMA audit on the Northridge earthquake report is nearing completion. The auditors expect to release a draft report, after which the Commission will have an opportunity to respond and comment. Mr. McCarthy said the audit will be discussed in more detail at the May meeting.

Appointment of New Commissioners

Mr. McCarthy noted the staff has heard rumors that the Governor's Office has appointed two new commissioners. He said he would let commissioners know when more definite information is available.

VII. HEARING ON STORAGE RACKS AND THEIR CONTENTS IN PUBLIC AREAS

Issue Overview and Video Presentation

Chairman Manning noted the seismic safety of storage racks used in large warehouse-type stores has become an issue of interest to the Commission due to the potentially serious hazards they pose to members of the public. To illustrate the problem, the Commission played a Home Depot training video showing extensive damage to racks and contents after the Northridge earthquake.

Regulatory Panel

Mr. Larry McCune, principal safety engineer, Cal OSHA, explained that Cal OSHA is the agency charged with enforcing federal and state standards for storage and materials. Although there are laws requiring safe storage systems, OSHA inspections occur only in response to complaints or accidents involving employees. Mr. McCune said existing standards are designed to control exposure to hazards under normal conditions. He added that the best way to address earthquakes would be to enact appropriate code changes regarding the design of rack systems.

Commissioner Chang asked Mr. McCune to provide a copy of existing standards for storage racks. Mr. McCune responded that the standards can be accessed on Cal OSHA's Web site. Commissioner Chang noted that seismic standards for rack systems should address different types of motion, including vertical, horizontal, and twisting movements. Mr. McCune commented that there are currently no seismic design criteria for rack systems. He said problems typically arise when customers and employees interact with stored materials. He added that the local fire marshal is responsible for annual safety inspections.

Commissioner Chang asked whether Cal OSHA has reports of warehouse damage from the Northridge earthquake. Mr. McCune said he could research the issue and report back with whatever information Cal OSHA has.

Commissioner Snyder commented that, if the Northridge earthquake had occurred at a different time of day, there could have been far more injuries to employees and customers in stores. She asked about preventive measures that could be taken by Cal OSHA. Mr. McCune explained that Cal OSHA conducts investigations in response to complaints and worker injuries, but the agency lacks resources and staffing to conduct more inspections. He said employers can be cited for violations of safety standards if inspectors find evidence of unstable stacking and storage practices.

Chairman Manning asked how many inspectors work for Cal OSHA, and Mr. McCune responded that there are currently about 300 to 400 inspectors in the state.

Chairman Manning asked whether Cal OSHA has a position on SB 629. Mr. McCune said that Cal OSHA supports additional study of the issues, but the agency is not taking a position on SB 629 at this time. Because of Cal OSHA's lack of resources, he recommended that petitioning the OSHA Standards Board for new OSHA standards and enacting building code changes would be a more effective way of improving seismic safety.

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Mr. Vic L. Taugher, retired building official, noted that the 1997 Uniform Building Code (UBC) contained the first provisions regarding high storage rack systems, but earlier building codes do not address this issue. However, he said, current code provisions do not address securing of materials and contents stored on racks. In addition, the safety of rack systems depends in large part on the weights of the materials being stored, and it is difficult for inspectors to determine rack capacity and weights of materials. He noted many stores overload racks and move shelf contents frequently, compounding this problem.

Mr. Taugher recommended posting rack capacities, considering automatic restraint systems to secure contents, and working with the insurance industry to develop incentives to encourage store owners to voluntarily mitigate these hazards. Regarding SB 629, he noted the definition of “warehouse/retail facilities” needs to be clarified to identify the specific types of stores affected. He questioned whether SB 629 is intended to apply to drug stores and furniture stores as well as big-box retail stores.

Chairman Manning commented that the goal of store owners should be to keep racks and contents from falling on customers and employees in store aisles. Mr. Taugher agreed, and added that he investigated a number of complaints about falling materials after the Loma Prieta earthquake. He said many store owners have voluntarily installed fire sprinklers, even though such devices are not required, in order to reduce their liability and obtain lower insurance premiums. He noted similar incentives regarding rack systems might be effective.

Commissioner Patwardhan asked about the costs of reinforcing existing racks or installing automatic restraint systems. Mr. Taugher responded that he did not know what these mitigation measures would cost.

Commissioner Shapiro asked if building permits are required to move racks from one part of a store to another. Mr. Taugher said permits are required for rack installations over a certain height and relocation of rack systems, but few store owners obtain permits when racks are moved. He said most stores use standard cookie-cutter rack designs and many owners are not aware that racks are regulated. He added that the Uniform Fire Code regulates high-piled stock and the type of flammable materials stored on racks, but not the structural stability of rack systems and their contents.

Mr. Pat Moran, California State Firefighters Association (CSFA), said CSFA supports SB 629 as a way of addressing this important public safety issue. He added that SB 486 (Speier), requiring restraining devices, may not be entirely effective because most hazards are the result of employee errors, not necessarily problems with the racks themselves. Mr. Moran expressed CSFA’s willingness to work with the Commission and others to improve the seismic safety of storage rack systems.

Commissioner Patwardhan asked if CSFA has information on the percentage of stores that have potentially unsafe racks and contents. Mr. Moran responded that he was not aware of any studies that have been done on this issue.

Chairman Manning asked whether CSFA members would be willing to take on additional inspection duties as part of annual fire safety inspections. Mr. Moran responded that most members would probably not oppose expanding the scope of inspections, depending on the extent of additional work involved. Commissioner Adelman commented that it might be more practical to assign this duty to fire inspectors because building departments do not conduct regular inspections once original construction is complete. Chairman Manning agreed, and added that fire service inspectors are responsible for ongoing maintenance-related inspections, while building officials have jurisdiction over construction. He noted that fire inspectors would need to be trained as to what specific things to look for. Commissioner Mochizuki suggested that a multi-disciplinary team approach might be the best way to handle periodic inspections.

Commissioner Adelman noted that building and fire codes are based on maximum travel distance to exits, and these distances are usually measured on bare floors before rack systems are installed. He noted the problem is compounded when rack layouts and building configurations are altered. Commissioner Adelman also recommended clarifying fire sprinkler requirements applicable to merchandise stored on high racks.

Mr. Robert E. Bachman, structural engineer, provided historical background on the development of building codes regulating storage racks. He said pre-1994 codes were based on expected ground motions equivalent to half the force experienced in the 1940 El Centro earthquake. However, the 1994 UBC provisions were strengthened due to concerns identified by the Structural Engineers Association of California (SEAOC) in the early 1990's, and the 1997 UBC increased minimum design force levels to account for near-fault zones. The 1997 UBC also incorporated updated seismic standards for rack systems developed by the Rack Manufacturers Institute (RMI). Mr. Bachman said the 2000 International Building Code refers to the 1997 standards and adds provisions for special inspections.

Mr. Bachman discussed some of the key issues involving storage rack systems and contents. He noted that rack manufacturers and store owners have long insisted that their rack systems are safe and have been reluctant to share studies and information with others. He reported that reconnaissance after the Northridge earthquake revealed that at least 10 percent of the racks in a Home Depot store collapsed, and significant amounts of merchandise were lost due to breakage. However, damages were minimal at a Costco store directly across the street from Home Depot. Mr. Bachman observed that shrink-wrapping seems to be an effective way of preventing merchandise from falling off racks. He recommended that store owners share information on rack designs and loads.

Mr. Bachman emphasized the need for more testing and validation to determine the adequacy of current codes. He recommended testing for existing rack systems, enacting standardized housekeeping/maintenance and shrink-wrapping guidelines for stores, and requiring annual inspections by local fire service personnel. He added that a lack of regulatory oversight hampers seismic safety efforts. Mr. Bachman noted that storage within warehouse/retail stores is often based on maximum forklift loads, so rack systems are often loaded beyond their posted capacities.

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Mr. Bachman expressed his opinion that SB 629 is a good start in addressing seismic safety issues with rack systems, but the bill needs to be amended to define what is considered “unacceptable conditions.” He suggested adding provisions requiring annual inspections and giving local fire marshals authority to impose fines for violations. Mr. Bachman said he had concerns about SB 486 because the effectiveness of railings and other restraint devices has not been adequately tested.

Mr. Bachman advocated additional funding for independent shake table tests, and he suggested looking to the Rack Manufacturers Institute as a possible source of funding. He also recommended involving RMI and store owners in the design and testing of safety restraint systems.

Commissioner Chang proposed that the Strong Motion Instrumentation Advisory Committee be charged with studying the performance of rack systems. He noted that shaking table tests should be based on larger and longer earthquakes as well as three-dimensional movements. Commissioner Chang suggested contacting officials from Taiwan for information on the performance of rack systems during their recent earthquakes. He also recommended bolting storage racks to store ceilings as well as floors.

Commissioner Adelman asked Mr. Bachman to comment on the adequacy of current codes to address storage rack problems. Mr. Bachman responded that tremendous strides have been made in recognizing realistic ground motion levels. He said he would rate the adequacy of the 1997 UBC as a “5” and the 2000 IBC as a “7” on a scale of 10.

Commissioner Haggerty asked about the possibility of using base isolation to improve the seismic safety of storage racks. Mr. Bachman replied that base isolation would probably amplify rack response to STET rather than deamplify. He noted that near-fault ground motions can produce large displacements.

Commissioner Patwardhan asked about posting capacity ratings for racks and their contents. Mr. Bachman noted that racks currently have capacity ratings, but the weight of pallet loads also needs to be considered. He recommended posting both rack and pallet load capacities.

Chairman Manning thanked panel members for their presentations and information.

Invited Speakers Panel

Ms. Julie Horner began her presentation by explaining that her 3-year-old daughter was killed in an Idaho Home Depot when a load of heavy countertops fell from a high storage rack. She played a videotape of a “20/20” program highlighting problems with storage rack systems. Ms. Horner said that in preparing for litigation against Home Depot, her attorney discovered many other cases involving falling merchandise.

Commissioner Snyder thanked Ms. Horner for sharing her experience. She noted that many

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accidents related to storage racks and contents occur in normal operations without earthquakes and expressed concern about the harm that could befall customers during major earthquakes. She recommended that stores identify and publicize which store areas are the safest for customers during earthquakes.

Commissioner Snyder asked Ms. Horner what corrective measures she would recommend. Ms. Horner and her husband, Matt Horner, suggested banning forklifts from aisles during business hours, prohibiting stacks over 4 feet high on the top shelves of storage racks, researching correct placement of safety barriers, considering the weight of materials as a factor in storage placement, providing hardhats to all customers, banning children under age 14 from store floor areas and providing safe play areas instead, and connecting rack systems to ceilings.

Mr. David McCormick, EQE International, expressed his opinion that current codes are fairly adequate in terms of addressing storage rack safety. He noted a major problem seems to be the use of older rack systems and educating owners regarding risks and permit requirements. Mr. McCormick agreed with Mr. Bachman that stores should share information more freely with engineers and code developers. He recommended opening stores to post-earthquake investigators after the next big seismic event.

Commissioner Adelman commented that research money tends to go to more glamorous projects. Mr. McCormick agreed, and said post-earthquake investigations are probably the best way to enhance research. Commissioner Snyder urged the research community to propose more research projects related to storage racks and contents as well as other nonstructural items.

Chairman Manning thanked the presenters for their information and suggestions.

Public Comments

Mr. Bruce Young, California Retailers Association (CRA), stated that his organization has not yet taken a position on SB 629. He said the California Retailers Association plans to conduct objective studies to verify what mitigation measures work best. He added that CRA members are dedicated to training employees and implementing safety procedures. Mr. Young recommended amending SB 629 to involve store owners in testing and studies. He also suggested delaying the compliance date of any new safety requirements to allow more time for shake table tests and additional research.

Mr. Eugene Lucas, FloStor Engineering, explained that his company manufactures and installs rack and conveyor systems. He urged the Commission to prioritize the issues and problems related to storage racks. He noted considerable progress has already been made in designing safe racks, and he described the typical permit and inspection process. Mr. Lucas said the largest problem appears to be lack of restraint for falling loads, and he noted compliance with existing standards is a key issue after rack systems are installed.

Mr. Percy Mueda, representing a pallet restraint system manufacturer, provided brochures describing his company's pallet restraint system. He said the system is currently being used by

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large companies such as PG&E and IKEA. He recognized there are cost issues regarding implementation, but he urged the Commission to look into restraint systems as an effective way of mitigating hazards from falling merchandise.

Mr. Sal Fateen, Rack Manufacturers Institute (RMI) and storage rack designer, stated that RMI plans to do more testing and research to ensure the safety of rack designs. He noted problems tend to arise from improper use, overloading, and poor maintenance of the systems once they are installed. Mr. Fateen emphasized the need to educate store employees and members of the public. He supported annual safety checks and regular inspections by independent inspectors or government agencies.

Commissioner Adelman asked Mr. Fateen to assess the adequacy of current codes. Mr. Fateen responded that he would rank the 1997 UBC an "8" and the 2000 IBC a "9" on a scale of 10. He recommended further research to verify the design forces used in current codes. He also noted it would be helpful to store owners and rack designers to establish requirements, definitions, and guidelines for rack systems under 8 feet, 8 to 12 feet, and over 12 feet high.

Chairman Manning thanked the speakers for their comments.

Video Presentation on Recent Storage Rack and Contents Shaking Table Tests

André Filiatrault, Professor, Structural Engineering Department, UC San Diego, played a videotape showing shake tests conducted on rack systems with various shelving and contents configurations. He explained that the tests only used a single, uniaxial direction of ground motion from the 1994 Northridge earthquake.

Professor Filiatrault said the study underlined the effectiveness of shrink-wrapping in preventing contents from falling off shelves. He recommended further testing of current rack systems with different types and directions of ground motion. He also suggested studying the effectiveness of upright-to-beam connections.

Commissioner Chang advocated additional testing with different soil types, bolting racks to ceilings, and testing rack systems until failure to determine their performance limits. He suggested pursuing funding from FEMA as well.

Commissioner Patwardhan commented that rack systems may be good candidates for strong motion instrumentation. Professor Filiatrault agreed, but noted it might be better to test racks in field settings at stores to accurately gauge their safety.

Chairman Manning thanked Professor Filiatrault for his presentation.

At 12:36 p.m., the meeting was recessed for lunch. The public meeting of the Seismic Safety Commission was reconvened at 1:28 p.m.

Rack Owners and Designers Panel

Mr. Peter S. Higgins, structural engineering rack design consultant, explained that his firm specializes in the design of storage rack systems for warehouse. He estimated that about 90 percent of California stores use his firm's designs. Mr. Higgins added that he would be happy to share his office's information with the Commission on rack designs and load capacities.

Mr. Higgins expressed his opinion that current codes are adequate to prevent collapse and minimize damage to racks in seismic events. He said the key problem is poor enforcement and lack of follow-up. He proposed adopting simple regulations requiring posting of rack capacities, annual inspections by local fire marshals, and reporting of violations.

Mr. Higgins supported additional testing to verify design criteria for restraint systems. He expressed concern that the installation of railings or fences might interfere with day-to-day store operations. He stated there have been no recent reports of full pallet loads falling in earthquakes; most damage occurs from small, loose objects. In addition, Mr. Higgins observed that installing safety devices could actually be detrimental to the structural performance of rack systems. He noted that safety nets for falling objects could pull entire rack systems down if the contents are too heavy.

Mr. Higgins recommended amending SB 629 to add a funding source. He said he had a number of concerns regarding the definitions and technical issues in SB 486.

Commissioner Clark asked Mr. Higgins to analyze the causes of the poor performance of the Van Nuys Home Depot store in the Northridge earthquake. Mr. Higgins said that particular store was one of his first Home Depot store designs in California. The nature and configuration of the store changed over time to store heavier building materials on higher shelves mitigate the problems; the company recently spent \$16 million to retrofit the ceramic tile area of its stores. He said his firm also conducts spot checks with store managers at regular intervals to ensure that racks are being used safely.

Commissioner Clark urged Mr. Higgins to share available information with design professionals and researchers, not just with the Commission. Mr. Higgins agreed that there should be a freer exchange of information. He offered to try to put together a consortium of large retailers to address this issue at the International Council of Shopping Centers conference this summer.

Commissioner Shapiro asked why so many stores fail to comply with rack standards and code requirements. Mr. Higgins said most store owners are unaware of permit requirements. He added that all of his clients comply with existing laws.

Commissioner Chang asked if stores have in-house inspectors to review racks designs and oversee construction and installation. Mr. Higgins responded that some in-house review takes place, and that both Costco and Home Depot hire their own special inspectors. Higgins' firm is hired for its expertise in rack system design. He said he seeks independent peer review of his projects, and all rack systems come from certified fabricators. He added that it is up to the client

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to arrange for inspections by in-house people or local building departments. Mr. Higgins clarified that his firm has no responsibility for day-to-day operations within stores.

Commissioner Shapiro asked if shrink-wrapping is effective even when items are removed from pallet loads. Mr. Higgins responded that shrink wrap behaves well even when pallet loads are cut and rewrapped.

Commissioner Patwardhan asked if capacity ratings are available for rack systems and merchandise. Mr. Higgins said the drawings produced by his firm show recommended configurations, load parameters, and capacities.

Mr. Higgins added that store roofs are generally not designed to support heavy loads, so bolting racks to ceilings could cause them to collapse.

Mr. Joseph W. Byrne, International Council of Shopping Centers, supported the recommendations made by Mr. Higgins.

Mr. Lance W. Hastings, California Grocers Association, expressed concern about Senator Speier's bill, SB 486; he characterized it as "a solution looking for a problem." He said the California Grocers Association is neutral on SB 629 but feels additional study would be helpful.

Mr. Hastings noted the grocery industry is doing a good job ensuring safety, and racks in stores generally perform well. He expressed a willingness to work with local fire marshals to provide information on high rack storage systems. He suggested that perhaps the proposed legislation should not apply to all grocery stores.

Commissioner Shapiro pointed out that contents on grocery shelves can fall and injure small children in earthquakes. He noted post-earthquake television reports often show considerable damage to merchandise. He suggested it would behoove the California Grocers Association to devise restraint devices for grocery shelves. Mr. Hastings responded that grocery stores operate on very thin profit margins. However, suppliers of grocery products might be interested in developing restraint systems to protect their wares.

Commissioner Chang asked if customers and employees have been injured in grocery warehouses as the result of falling objects. Mr. Hastings said he was not aware of any reports from members regarding such injuries. He added that the California Grocers Association supports additional research and testing.

Mr. Dennis Hoover, Costco, reviewed mitigation policies for store employees. He noted safety procedures include daily inspections, bolting shelves back-to-back, shrink-wrapping pallet loads, bolting rack systems to floors, using high-quality pallets, and bolting rack beams to uprights. He said that beginning in August, forklifts will be prohibited from store floors during customer hours.

Chairman Manning asked how placement of merchandise is determined. Mr. Hoover responded

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that merchandise is generally stored where it fits. He noted that shrink-wrapping is widely used, and loads are rewrapped with plastic after items are removed.

Commissioner Snyder asked about earthquake preparedness programs for employees. Mr. Hoover said every store is different, but all managers are responsible for having emergency plans in place. Store employees are informed about where to assemble in emergencies. He added that the center of the store or the check-out area is probably the safest place because there are no racks in those areas.

Mr. Jess Morales, Wal-Mart and Sam's Clubs, affirmed his company's commitment to mitigating hazards from storage racks and contents. He said Wal-Mart and Sam's Club stores have guidelines to bolt racks to floors, use safety slats and pins to secure loads, and shrink-wrap all items on racks. In addition, two spotters are present to assist whenever forklifts are used during customer hours. Mr. Morales reported that Wal-Mart stores in the Seattle area suffered no damage in the recent earthquake; although racks moved, no contents fell from shelves. He added that Wal-Mart is willing to cooperate with the Seismic Safety Commission and others to improve seismic safety, provided that it's cooperation is cleared with Wal-Mart's legal department.

Commissioner Clark urged Wal-Mart and Sam's Clubs to open stores to structural engineers after earthquakes to study the performance of rack systems. He also emphasized the importance of sharing information with design professionals and researchers.

Mr. Joshua Marrow, Simpson, Bumpertz & Heger, Inc., discussed findings from his research on storage rack systems used in the wine industry. He recommended pooling industry funds to finance research and testing, proceeding slowly and cautiously with mitigation techniques because of the possibility of unanticipated side effects. Rack systems should be built to full capacity, a contingency factor to offset noncompliance in the field, and recognizing the interaction of racks can cause partial collapse of the structures housing them. Mr. Marrow noted that consumers and store owners need further education about earthquake mechanics so they better understand earthquake risks. He also supported installation of strong motion instrumentation in stores.

Chairman Manning thanked all presenters for their information and suggestions. He then closed the public hearing.

Commission Deliberations

Commissioners focused on possible options regarding SB 629. Mr. McCarthy proposed working with the author to amend the bill to add a funding source, possibly with an industry match; require regular inspections; and provide for additional research and testing. He also recommended trying to identify the amount needed to fund additional research.

Mr. Sepulveda said SB 629 in its current form was scheduled for a hearing before the Senate Government Organizations Committee on April 17, and then the bill would be sent to the Senate Appropriations Committee for fiscal review. He noted this leaves a period of approximately two

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weeks to modify its provisions. He suggested that the staff prepare a summary of the key points and recommendations made at this meeting so the Commission can provide feedback to the author before the fiscal hearing.

Mr. McCarthy raised the possibility of SB 629 becoming a two-year bill, which would defer its enactment date. He noted this would allow more time for further research and testing.

Commissioner Mochizuki expressed concern about creating an unfunded mandate. He recommended working with the industry to gather information and solicit funds.

Commissioner Chang suggested proposing amendments based on Mr. Bachman's recommendations.

Mr. Sepulveda said the staff would prepare a summary for the Commission within the next week.

Commissioner Shapiro noted that studying rack systems might be an ideal project to assign to Pacific Earthquake Engineering Research (PEER) center, a public entity with strong ties to the Commission and private industry. He suggested designating PEER as the lead agency in SB 629. Mr. Sepulveda said the staff will look into that possibility.

Mr. McCarthy recommended proposing that state funding be matched by private funds. Mr. Sepulveda suggested amending the legislation to say the state will provide two thirds of the necessary funds and leaving it up to PEER to obtain the other third.

Commissioner Chang proposed establishing a special committee to work on summarizing the hearing and making recommendations. Chairman Manning pointed out there would not be enough time for the committee to meet in the short time remaining. He recommended leaving it up to the staff to prepare the summary.

ACTION: Commissioner Snyder made a motion, seconded by Commissioner Chang, that:

The commissioner direct the staff to provide a summary of the points made at this hearing to commissioners for their input.

Commissioner Snyder suggested amending the motion to authorize the Legislative Committee to take action on the Commission's behalf. Commissioner Clark proposed that the committee forward its recommendations for amendments to the Commission for approval. The maker and seconder of the motion accepted Commissioner Clark's amendment.

Commissioner Adelman asked to be added to the Legislative Committee for purposes of considering amendments to SB 629. Commissioner Snyder noted that all commissioners are welcome to attend committee meetings; she noted there was no need to add members to the committee. Other commissioners agreed.

There was general support among commissioners for the concept of amending SB 629 with a

provision for state-industry matching funds.

Mr. McCarthy said the staff will work with Senator Alarcon regarding the proposed amendments.

* Motion carried, 9 - 0 (Commissioner Haggerty absent during voting).

VIII. CALIFORNIA'S MOST VULNERABLE POPULATIONS

Mr. Ron Lopez, Emergency Medical Services Disaster Specialist, City and County of San Francisco, made a presentation on San Francisco's innovative program to assist vulnerable populations in disasters. He said about 20 percent of the state's population consists of people who are very young, elderly, or disabled, and these people have no safety nets in emergencies. Because the population of elderly people will grow during the coming decades, this problem is likely to become more critical in the future.

Mr. Lopez noted that San Francisco established a public-private response partnership with three important components: a database, a neighborhood-based system of community volunteer teams, and education and outreach programs. In the event of an emergency, the volunteer teams use the database to identify vulnerable people so they can be contacted and assisted with their critical needs. Mr. Lopez said San Francisco's program is now being emulated by other districts, and there are now 33 similar programs in California.

Mr. Lopez noted community volunteer programs have huge training and support needs. He welcomed the Commission's assistance in developing legislation to support and fund these programs.

Mr. Lopez invited commissioners and audience members to access the program's Web site for more information.

Chairman Manning asked how San Francisco's program is different from community emergency training team (CERT) programs. Mr. Lopez explained that CERT programs, funded by FEMA, are based on general community disaster teams, while the neighborhood program in San Francisco focuses exclusively on vulnerable populations.

Commissioner Chang asked how the program is funded. Mr. Lopez responded that San Francisco passed a county ordinance establishing the program, and funding comes from the county's budget.

Chairman Manning thanked Mr. Lopez for his presentation.

IX. MISCELLANEOUS/GOOD OF THE MEETING

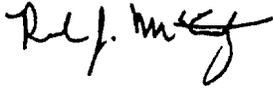
Chairman Manning reported that the Governor's Office appointed three new commissioners, Church, Klein, and Nishinaga.

Regular Meeting Minutes

X. ADJOURN

There being no further business, the Commission meeting was adjourned at 3:18 p.m.

Approved by:

A handwritten signature in black ink, appearing to read "Rich. McCarthy", written over a horizontal line.

Richard McCarthy
Executive Director