



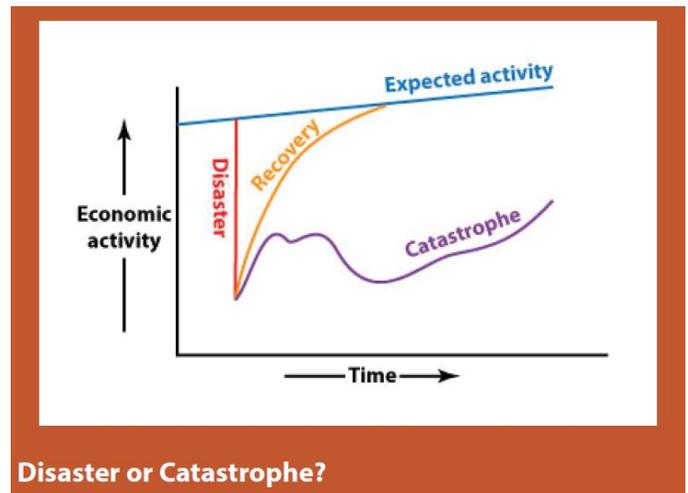
**President’s Message**  
By Brent Maxfield  
EERI Utah Chapter President

### Seismic Resilience

The terms “resilience” and “resiliency” are becoming buzz words. The definitions of these terms vary in their complexity, but generally when applied to a seismic event, they mean the ability and speed at which an individual, community, jurisdiction, or state can recover from an earthquake disaster.

Hopefully, you are aware of the recently released report titled, “*Scenario for a Magnitude 7.0 Earthquake on the Wasatch Fault – Salt Lake City Segment: Hazards and Loss Estimates.*” This report was published by the EERI Utah Chapter in June of this year. It has been presented to the Utah Seismic Safety Commission and to Lt. Governor Cox. It is also being distributed to various government and private organizations. You can download a copy of it from the EERI Utah website at <http://utah.eeri.org>. The report presents a realistic picture of the effects of a magnitude 7 earthquake occurring in the Salt Lake Valley. It illustrates the length of time it may take for the state of Utah and its residents to fully recover from this event. The report also presents the long-term impacts on Utah’s economy.

The below figure is presented on Page 48 of the report:



When a disaster occurs, such as a large magnitude earthquake, there is an immediate drop in the economic activity. After this happens there is a curve or a line that represents the speed of getting back up to where the expected economic activity would have been. The slope of the line is a measure of the resilience of an organization. If the organization does not have resiliency, then the recovery may fail, and may never get back up to the expected activity.

Resiliency does not just happen. It must be planned for. EERI recommends that everyone, from

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individuals, families, communities, etc. review the report and consider the impacts that this scenario earthquake could cause, and then make plans for your recovery. This preparation can happen by understanding what your critical functions are and then making plans for doing without, or making something else achieve the function, or getting them quickly back into operation.

The topic of seismic resilience is important to the EERI Utah Chapter. We will be discussing this much in the coming year. In the spring of 2016 we will be sponsoring a one-day course on the topic where we hope to bring together diverse groups and learn from each other on how to be better able to recover from a large magnitude earthquake on the Wasatch fault.

The EERI Utah Chapter is committed to reducing the harmful effects of earthquakes in Utah. We encourage your participation with us. You can join for only \$25 per year. Join at <http://utah.eeri.org>. In the JOIN EERI TODAY section, click, "Register as a Utah Chapter Member Only." We hope to see you soon.



**How Many Initialisms or Acronyms Can You Name?**

By Jerod G. Johnson, SE, PhD  
EERI – Utah Board Member

How many initialisms or acronyms can you name reflecting councils, associations and organizations connected to

our organization? Here are a few: ACI, ASCE, AISC, AWS, ASTM, AIA, AGC, AISI, FEMA,

ICC, NEHRP, TMS, RCSC, NCSEA, NCEES, SEAU, CSI, DBI, UEC, ACEC, CASE, PCA, PCI, PTI, SMPS, SJI, SDI, USGS, PEER, CUREE, SAC, ATC, USRC and of course, let us not forget EERI. I have even been approached recently by individuals with the objective of starting new non-profit organizations related to our field. Is it just me or do you feel like there is an endlessly growing plethora of ‘non profit’ organizations, each with a specific agenda, each with something to offer, and each vying for your attention, your participation and your financial resources? And these are just a sampling of those associated I believe to be associated with EERI.

One of my favorites is SAC, which is an acronym of three other acronyms or initialisms (SEAOC, ATC, and CUREE) and I wait for the day when SAC joins forces with others to create a three-tiered hierarchy of organizations dedicated to some other common purpose. Perhaps SAC could join up with TMS, OPEC, and PCI...wait... that new acronym doesn't sound very progressive. Sort of reminds me of Robin Williams in the movie Good Morning Vietnam. What was that line?...oh yeah: "Seeing as how the VP is such a VIP, shouldn't we keep the PC on the QT? Cause if it leaks to the VC he could end up MIA, and then we'd all be put out in KP". Maybe it had something to do with my upbringing and my Dad's 40 years of background with the armed services...it seemed there was always an interesting acronym to learn and I'll never forget those hunting trips and eating MRE's on the mountainside and speaking in backwards military jargon...please pardon the digression.

How many of these organizations should we personally participate in? It would be impossible to cover all the bases, so how do you decide? I received an interesting letter from ASCE not long ago. On the cover of the envelop it said something to the effect of, "Mr. Johnson, we noticed you renewed your Texas Professional Engineers License and that you are STILL not a member of ASCE and we want to know why". I've received letters of recruitment from ASCE before, but this one was different and I was genuinely interested in



responding to their query. However, I opened the letter only to find the congratulatory notice that my membership in ASCE had been pre-approved and all I needed to do was send them a check for \$140. I still feel some degree of guilt for not having joined up with the local chapter of ASCE. ASCE is a fantastic organization that has provided untold benefits for the engineering community and in fact for the entire human race. The world is a better place because of ASCE and its countless members and volunteers dedicated to the improvement of the human civilizations.

So, why have I not joined ASCE and the countless other non-profit organizations related to my profession? The answer is simple and you probably already know it. Maybe you share this sentiment; the local chapter of ASCE does not serve my interests as well as other organizations do. It is not as relevant to me as other organizations. Time and money are increasingly valuable commodities so I must be very selective in the organizations with which I choose to dedicate these resources.

This brings me to EERI. So, why am I a member? Quite simply, it is one non-profit organization that best serves my interests as a structural engineer and as a researcher with a focus in earthquake engineering. It is more relevant to my profession than other noteworthy non-profit associations. I hold membership in other related organizations and I do participate, most notably as a board member of SEAU. Considering EERI-Utah and SEAU, this is where most of my dedication lies with respect to career related associations.

I respect the other organizations and I cannot begin to enumerate the benefits of the products and materials these organizations provide. But I have recently begun to wonder...are they relevant? I think that most of them likely are and their missions are praiseworthy. They deserve our support as we continue to benefit from the products they provide. I understand many of these organizations are so large as to require a full time paid executive director with staff, including the National EERI Organization. There is nothing wrong with this provided their mission and their products are of true

relevance and benefit to those they purport to serve. However, do gradual changes in the needs of members force these associations into a mode of self preservation once their relevance begins to fade?

As an interesting side note, I have a bold question; are regular building code cycles driven by industry advancement or by self preservation of the organizations, associations and institutes producing the codes? Perhaps both are at play. Currently, I am especially perplexed as I'm forced to embrace the subtle changes and nuances in the most recent releases of the concrete and masonry codes. In large measure, I've found these codes to be mostly a re-organization of material that was already in earlier code versions. Over 20 years ago, I joined the HP48SX users group at the University of Utah College of Engineering. This group had a laudable purpose of helping students learn to use the newest and most technically capable calculator. The group in fact, received funds (derived from student fees) from ASUU, the Associated Students at the University of Utah (yet another initialism!). However, the HP48SX User Group no longer exists simply because its purposes do not coincide with student needs. It is no longer relevant...though I'm sure if it did exist its members would take full advantage of the funding provided by ASUU! Perhaps this group would still exist had it maintained its relevance by shifting its focus to whatever 'hot calculator' was the flavor of the month.

I am convinced that EERI is a relevant organization. Its benefits are direct and clear. Not long ago I received a notice from DOPL (great, another initialism!) informing me of an audit of professional development hours. So, I opened the folder with all of my certificates from seminars and other events. I had no trouble demonstrating sufficient hours to maintain licensure. Without the hours afforded by educational opportunities through EERI, I clearly would have struggled to demonstrate 24 hours of PDH units over two years. This is not all; my experiences with EERI (as a board member and through seminars and short courses) have been positive and have helped me to be a better structural



engineer. For me, EERI is extremely relevant and my interest is in ensuring that its relevance continues and improves because I have much to gain (or at least maintain) in that regard. I candidly invite you to make the Utah Chapter of EERI a priority. Even better still, bring along a friend with similar research, career or general interests.



### **EERI Utah Chapter/Structural Engineers Association of Utah Joint Meeting**

On Thursday, October 15, 2015, Dr. Youssef Hashash and Dr. Judith Mitrani-Reiser presented their experience of earthquake reconnaissance following the 2015 Nepal Earthquake.

Dr. Hashash focused on geotechnical issues. He said that there was no indication of surface fault rupture. There was evidence of directivity with damage focused east of the epicenter and not west. There was also evidence of basin effects, and greater damage found near the edges of the basin, and also topographic effects, with damage greater at the tops of geographic features. Had the earthquake happened during a rainy season with higher ground

water, then liquefaction damage would have been greater. His lessons learned would be that there are ground motion amplifications due to basin and topographic effects, and these are not considered in the building code.

Dr. Mitrani-Reiser focused on healthcare facilities. She discussed the number of hospitals and healthcare facilities that were heavily damaged or destroyed. She emphasized that simple plan buildings performed very well compared to buildings with irregular shapes even though they had similar construction on the same site. She also said that most damaged buildings had poor workmanship, improper detailing, or geometric irregularities. In her talk she encouraged structural engineers to view a damaged column as more than just a structural element, and to view it in the context of what it affects. For example, would it close a hospital and prevent the care of injured people. Her talk concluded with some perspectives on how to quantify the resilience of healthcare facilities. Her lessons learned include having multiple sources of redundancy and having business owners consider how to care for their staff, so that the staff can function following the disaster.



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### 2015 EERI Utah Chapter Leadership

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| Board Member                   | Bill Lund      | <a href="mailto:billlund@utah.gov">billlund@utah.gov</a>               | (435) 865-9034 |

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### Helpful Earthquake Engineering Links:

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| Earthquake Engineering Research Institute (EERI) - Utah National EERI | <a href="http://utah.eeri.org">http://utah.eeri.org</a>  |
| Structural Engineering Association of Utah (SEAU)                     | <a href="http://www.eeri.org">http://www.eeri.org</a>  |
| American Society of Civil Engineers (ASCE) – Utah ASCE GEO-Institute  | <a href="http://www.seau.org">http://www.seau.org</a>  |
| American Council of Engineering Companies (ACEC) - Utah               | <a href="http://www.sections.asce.org/utah/">http://www.sections.asce.org/utah/</a>                                |
| Seismological Society of America (SSA)                                | <a href="http://www.asce.org/geo/">http://www.asce.org/geo/</a>  |
| Southern California Earthquake Center (SCEC)                          | <a href="http://www.acecutah.org">http://www.acecutah.org</a>  |
| Utah Seismic Safety Commission (USSC)                                 | <a href="http://www.seismosoc.org">http://www.seismosoc.org</a>  |
| Utah Geological Survey (UGS)  | <a href="http://www.scec.org">http://www.scec.org</a>  |
| University of Utah Seismology and Active Tectonics Research Group     | <a href="http://ussc.utah.gov">http://ussc.utah.gov</a>  |
| Utah Division of Occupational and Professional Licensure (DOPL)       | <a href="http://www.geology.utah.gov/utahgeo/hazards/index.htm">www.geology.utah.gov/utahgeo/hazards/index.htm</a> |
| United States Geological Society (USGS)                               | <a href="http://www.uusatrg.utah.edu">http://www.uusatrg.utah.edu</a>  |
| Be Ready Utah   | <a href="http://www.dopl.utah.gov">http://www.dopl.utah.gov</a>  |
| Utah ShakeOut Website:  | <a href="http://earthquake.usgs.gov/">http://earthquake.usgs.gov/</a>  |
| Homebuyer’s Guide to Earthquake Hazards in Utah                       | <a href="http://www.utah.gov/beready/">http://www.utah.gov/beready/</a>  |
|   | <a href="http://www.shakeout.org/utah/">http://www.shakeout.org/utah/</a>  |
|   | <a href="http://geology.utah.gov/online/pdf/pi-38.pdf">http://geology.utah.gov/online/pdf/pi-38.pdf</a>            |

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*EERI Utah Chapter is seeking articles and announcements for upcoming newsletter editions. Please forward submissions to be considered by the Utah Chapter leadership to Chris Garris at [garrisct@pbworld.com](mailto:garrisct@pbworld.com).*