SEAU/EERI ANNUAL JOINT MEETING

LET'S TALK SEISMIC

IN A LANGUAGE WE CAN ALL UNDERSTAND

University of Utah
Warnock Engineering Building
Room L103

Thursday, October 25, 2018
Social 5:30pm - 6:00pm
Meeting 6:00pm - 7:30pm

When engineers can discuss seismic concepts in simple language it helps facilitate informed discussions with decision makers and the general public regarding earthquake risk. Using easy-to-relate-to ideas, this presentation will bring complex seismic concepts into language that we can all understand.

- A key part of the presentation will be understanding the difference between magnitude and ground shaking and understanding that it's all about the shake in the quake.

- This presentation will help architects, structural engineers, building officials, building owners, and the public become more conversant in seismic language and the intent of modern seismic building design. The presentation is based on a well-received presentation given at the 2018 NASCC Steel Conference.

- Participants will leave this presentation with a better understanding of key seismic concepts and be able to have more meaningful discussions about seismic risk.

for: Building Owners
Policy Makers
Building Officials
Insurance Industry
Structural Engineers
Geotechnical Engineers
Civil Engineers

BRENT MAXFIELD

Brent Maxfield is a Professional Structural Engineer with over 30 years experience working on structural and seismic projects. He has been employed by the Church of Jesus Christ of Latter-day Saints for over 26 years.

Brent is an active member of local professional societies. He has served two terms on the Board of the Structural Engineers Association of Utah, SEAU, and as President of the Earthquake Engineering Research Institute EERI Utah Chapter. In 2012 Brent was named the Utah Engineer of the Year by the Utah Engineers Council.

Brent has a keen interest in understanding all aspects of the seismic engineering and has devoted many years of study to the topic.

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EERI

Other Utah Locations – S_S

	ASCE 7-10	ASCE 7-16	Change	Percentage
Logan	0.971	1.058	0.087	9%
Brigham City	1.467	1.372	-0.095	-6%
Ogden	1.373	1.362	-0.011	-1%
Provo	1.144	1.323	0.179	16%
Manti	0.638	0.635	-0.003	0%
Cedar City	0.702	0.777	0.075	11%
St. George	0.499	0.509	0.010	2%
Vernal	0.297	0.317	0.020	7%
Monticello	0.156	0.179	0.023	15%

Other Utah Locations – S_1

	ASCE 7-10	ASCE 7-16	Change	Percentage
Logan	0.311	0.353	0.042	14%
Brigham City	0.521	0.488	-0.033	-6%
Ogden	0.499	0.497	-0.002	0%
Provo	0.427	0.496	0.069	16%
Manti	0.186	0.199	0.013	7%
Cedar City	0.216	0.250	0.034	16%
St. George	0.153	0.165	0.012	8%
Vernal	0.091	0.082	-0.009	-10%
Monticello	0.054	0.057	0.003	6%

Sample Changes, S_{DS} (Short Period Buildings)

Location	S_{DS}	A	B Measured	B Unmeasured	C	D	Default	E
Logan	+9%	+8%	-2%	+9%	+29%	+6%	+18%	+40%
Brigham City	-6%	-6%	-16%	-6%	+12%	-6%	+12%	+25%
Murray	-4%	-4%	-14%	-4%	+15%	-4%	+15%	+15%
St. George	+2%	+2%	-8%	+2%	+10%	+1%	+1%	+1%
Monticello	+15%	+16%	+4%	+15%	+25%	+15%	15%	+10%

Sample Changes, S_{D1} (Long Period Buildings)

Location	S_{D1}	A	B Measured	B Unmeasured	C	D	Default	E
Logan (S1 > 0.2)	+14%	+13%	-9%	+14%	+15%	+24% (+59% Base Shear)	+24%	*
Brigham City (S1 > 0.2)	-6%	-6%	-25%	-6%	+8%	+13% (+40% Base Shear)	+13%	*
Murray (S1 > 0.2)	-4%	0%	-20%	-1%	13%	+17% (+43% Base Shear)	+17%	*
St. George (S1 < 0.2)	+8%	+7%	-14%	+8%	-2%	+12%	+12%	+17%
Monticello (S1 < 0.2)	+6%	+3%	-17%	+6%	-7%	+5%	+5%	+26%

* Site-specific ground motion hazard analysis is required