

## Southern Idaho Section – ASCE Meeting in Eastern Idaho

**DATE:** Tuesday, December 6, 2016  
**TIME:** 12:00 pm  
**LOCATION:** Pizza Pie Café, 3160 E 17<sup>th</sup> St., Ammon, Idaho  
**COST:** \$10.00 for Buffet Lunch and Drink (*payment collected at the door*)

**PRESENTATION:** Seismic Behavior of Bridge Columns with Grouted Couplers, Dr. Arya Ebrahimpour, Idaho State University

### PRESENTATION DESCRIPTION

In Accelerated Bridge Construction (ABC) methods, one way to connect prefabricated columns is by using grouted steel bar couplers. At the present time, in the U.S., only the State of Utah allows the use of grouted couplers in plastic hinge locations in seismic zones. A study funded by the Idaho Transportation Department (ITD) was carried out on seismic performance of grouted coupler column-to-footing and column-to-bent cap connections under Idaho seismic conditions. The performance of grouted coupler connections is compared to the conventional cast-in-place connections. Three Idaho bridges were selected by ITD for computer analysis using OpenSees finite element analysis program. Experimental data provided the necessary input to model the grouted couplers used in the bridge columns. The bridges were placed in the most seismically active location in Idaho. All three bridge columns performed well. The stresses in both the longitudinal reinforcing bars and the grouted coupler regions are well within acceptable ranges. The largest column drift, using combination of orthogonal displacements, is 1.6 percent. The single column analysis under large drift shows that grouted couplers may be used to connect precast columns to footings or cap beams when column drift is less than 4 percent.

### Sign-In Sheet:

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|-----|-------------------------|--------------------------------------------|-------------------------------------------------|
| 1.  | <u>KEVIN HINKLEY</u>    | email: <u>khinkley@hwlochner.com</u>       | Lunch <input checked="" type="checkbox"/> / N   |
| 2.  | <u>Lance Bates</u>      | email: <u>lbates@co.bonneville.id.us</u>   | Lunch Y / N                                     |
| 3.  | <u>Arya Ebrahimpour</u> | email: <u>ebrarya@isu.edu</u>              | Lunch Y / N                                     |
| 4.  | <u>John Gilmore</u>     | email: <u>jp.gilmore@hotmail.com</u>       | Lunch <input checked="" type="checkbox"/> / N   |
| 5.  | <u>Krystal Chanda</u>   | email: <u>Chanda@ae-eng.com</u>            | Lunch <input checked="" type="checkbox"/> / N   |
| 6.  | <u>ZACK SMITH</u>       | email: <u>SMITH@AE-ENG.COM</u>             | Lunch <input checked="" type="checkbox"/> / N   |
| 7.  | <u>Aaron Swenson</u>    | email: <u>aswenson@farsgren.com</u>        | Lunch <input checked="" type="checkbox"/> / N   |
| 8.  | <u>Maria Tangarife</u>  | email: <u>mtangarife@stratageotech.com</u> | Lunch <input checked="" type="checkbox"/> / N   |
| 9.  | <u>Rocky Benedetti</u>  | email: <u>rbenedetti@stratageotech.com</u> | Lunch <input checked="" type="checkbox"/> / N   |
| 10. | <u>Bruce Sawicki</u>    | email: <u>SAWICKI@ISU.EDU</u>              | Lunch <input checked="" type="checkbox"/> / N   |
| 11. | <u>Kent Fugal</u>       | email: <u>kfugal@idahofalk.idaho.gov</u>   | Lunch <input checked="" type="checkbox"/> / N   |
| 12. | <u>Nathan Harris</u>    | email: <u>harrisn@byui.edu</u>             | Lunch Y / N                                     |
| 13. | <u>TELISHA FIVAS</u>    | email: <u>telishamarie@hotmail.com</u>     | Lunch Y / <input checked="" type="checkbox"/> N |

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|-----|-----------------------|----------------------------------------------|----------------------------------------------|
| 14. | <u>Robert Esplin</u>  | email: <u>resplin@eszeng.com</u>             | Lunch Y / <input checked="" type="radio"/> N |
| 15. | <u>Chris Canfield</u> | email: <u>ccanfield@idahoballs.idaho.gov</u> | Lunch <input checked="" type="radio"/> Y / N |
| 16. | <u>ZANE WELLS</u>     | email: <u>ZANE.WELLS@ESZENG.COM</u>          | Lunch Y / <input checked="" type="radio"/> N |
| 17. | <u>Jon Bricker</u>    | email: <u>Jonathan.Bricker1@By Gmail.com</u> | Lunch Y / <input checked="" type="radio"/> N |
| 18. | <u>JEFF HANSEN</u>    | email: <u>han12047@byui.edu</u>              | Lunch <input checked="" type="radio"/> Y / N |
| 19. | <u>Aiden Fuhrman</u>  | email: <u>aiden.fuhrman@gmail.com</u>        | Lunch Y / N                                  |
| 20. | <u>Patrick Fisher</u> | email: <u>fis14613@byui.edu</u>              | Lunch Y / N                                  |
| 21. | <u>BARRY BAME</u>     | email: <u>BAM13001@BYUI.EDU</u>              | Lunch Y / N                                  |
| 22. | <u>Kelly Hoopes</u>   | email: <u>kellyh@horrocks.com</u>            | Lunch Y / N                                  |
| 23. | _____                 | email: _____                                 | Lunch Y / N                                  |
| 24. | _____                 | email: _____                                 | Lunch Y / N                                  |
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| 33. | _____                 | email: _____                                 | Lunch Y / N                                  |
| 34. | _____                 | email: _____                                 | Lunch Y / N                                  |
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| 40. | _____                 | email: _____                                 | Lunch Y / N                                  |
| 41. | _____                 | email: _____                                 | Lunch Y / N                                  |
| 42. | _____                 | email: _____                                 | Lunch Y / N                                  |