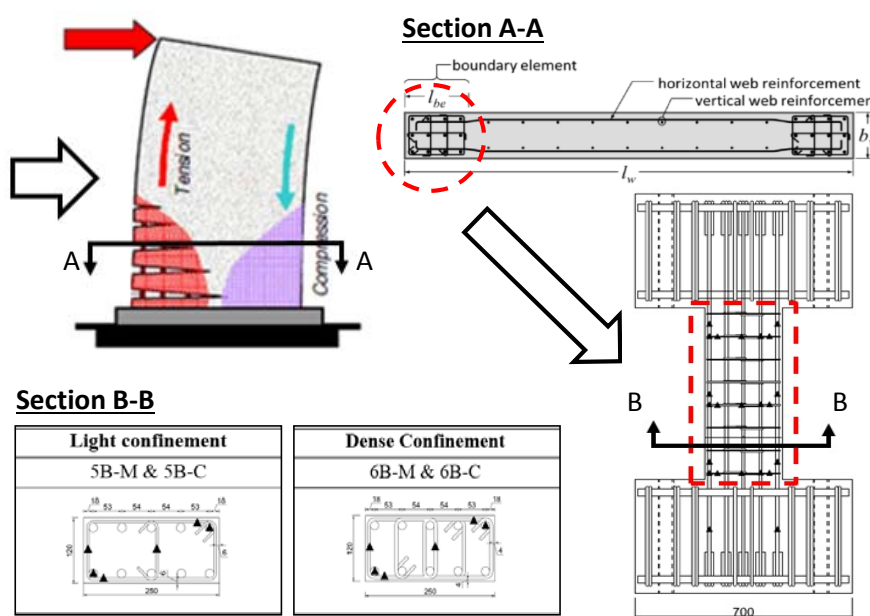
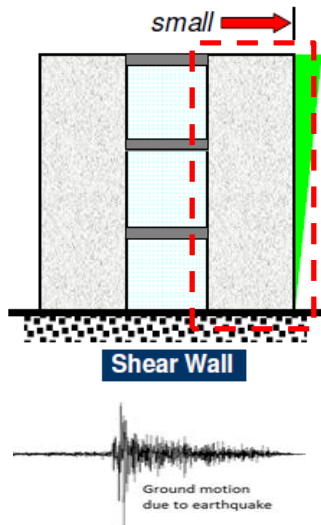
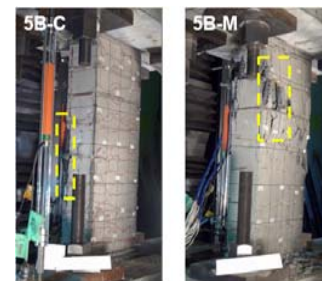
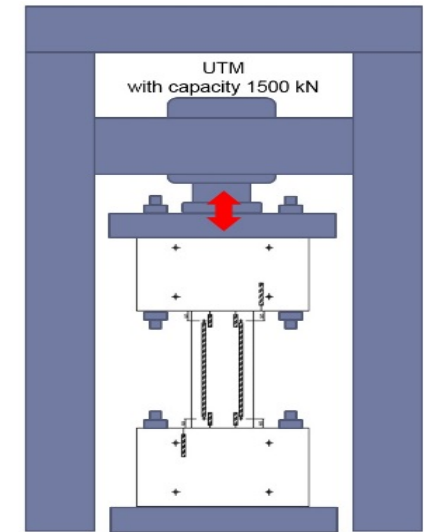


## Introduction

Reinforced concrete (RC) wall is one of lateral resisting systems for the multi-story buildings to minimize the damages due to earthquake. RC walls with rectangular section did not perform well during recent earthquake in Chile (2010) and Christchurch, New Zealand (2011). Therefore, More studies are required to assess their performances during earthquakes.

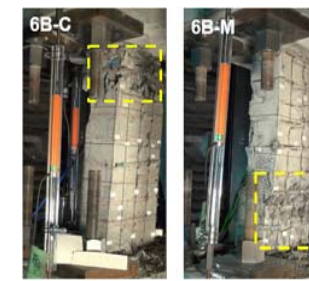
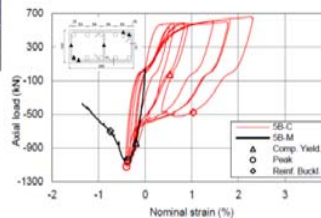


## Test Setup



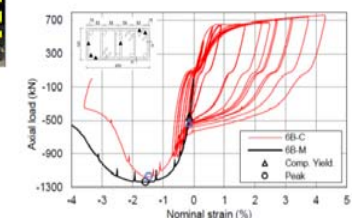
**Spec. 5B-C:**  
 $P_{max} = -1121 \text{ kN}$ ,  $\epsilon_{max} = -0.40\%$   
**Spec. 5B-M:**  
 $P_{max} = -1045 \text{ kN}$ ,  $\epsilon_{max} = -0.38\%$

Both 5B-C and 5B-M elements failed by buckling of longitudinal reinforcement, followed by crushing of concrete in buckling region.



**Spec. 6B-C:**  
 $P_{max} = -1175 \text{ kN}$ ,  $\epsilon_{max} = -1.47\%$   
**Spec. 6B-M:**  
 $P_{max} = -1237 \text{ kN}$ ,  $\epsilon_{max} = -1.58\%$

Both 6B-C and 6B-M elements failed by crushing of compressive concrete followed by localized buckling of the damaged region.



## Conclusion

The lack of closely spaced transverse reinforcement failed due to buckling of longitudinal reinforcement otherwise the dense confinement improved the performance of element where maximum capacity and ductility increased. Therefore, a limit for both transverse reinforcement and ties spacing should be considered to provide sufficient confinement.

## Acknowledgment

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## Objective

To investigate the effects of reinforcement detailing and loading history on the capacity and the failure modes of confined boundary elements of RC rectangular walls.