

Lower-damage Walls

QuakeCoRE FP4 2017 project



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Background

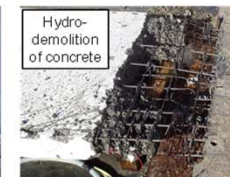
- Low-damage concrete walls mostly based on PT rocking systems
- Repair of conventional concrete walls possible but difficult [2016 QC project]
- Need a range of alternative solutions



Damage after testing



Hydro-demolition of concrete



Hydro-demolition of concrete



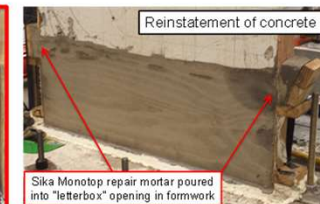
Removal of existing reinforcement



Reinstatement of new reinforcement



Reinstatement of new reinforcement



Reinstatement of concrete

Sika Monotop repair mortar poured into "letterbox" opening in formwork

Objectives



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- Experimentally verify lower-damage modifications to conventional reinforced concrete walls
- Assess the reparability and residual capacity of the tested alternative wall solutions
- Verify existing numerical modelling techniques for the walls with lower-damage modifications

Research Plan



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- Test walls that include minor modifications to previously tested walls:
 - Debonding vertical reinforcement
 - Precast concrete walls with debonded vertical reinforcement and drossbach ducts
 - Installing crack initiators to force increased secondary cracks to form in lightly reinforced walls
- Test new low-damage wall solutions with innovative materials:
 - ECC and SMA bars in the plastic hinge
 - Elastomeric bearings at the corners of the wall

Team



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- Rick Henry
- Keri Ryan
- Ken Elwood
- Alessandro Palermo
- Yiqiu Lu

- Stephen Blount, Zhibin Li

- Peter Smith, Nic Brooke, Craig Stevenson