Chimney and Mobile Home Performance

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Introduction
- Earthquake struck 10 miles north of Anchorage
- Expect much damage from M7.1 based on California fragility experience
- Few chimneys damaged and no mobile homes toppled
- WHY...

Methodology
- Interview EERI Clearinghouse participants
- Review City permit & inspection databases
- Interview City Officials, building contractors, mobile home managers
- On-site reconnaissance in June 2019

Shaking Intensity

Anchorage Bowl PGA and PGV from 17 stations
- PGA (< 0.4g) and PGV (< 12 in/s) relatively low due to 29 mile source depth
- California often has shallower earthquakes resulting in higher shaking intensities

Chimneys
- Metal are popular
- Masonry are relatively much fewer

Chimney Findings
- Mostly young housing with rugged Metal chimneys (> 1970s)
- Older Masonry chimneys steel reinforced
- Relatively few vulnerable URM chimneys
- PGAs were low (< 0.4g) such that only tall URM and intermediate height URM of weak masonry vulnerable
- California has many older vulnerable URM chimneys (< 1940s)

Mobile Homes
- Single-wide mobile home
- Support system

Mobile Home Findings
- PGVs were low (< 12 in/s) such that even unanchored homes unlikely to topple
- Homes have tie-downs but effectiveness under stronger shaking is open question
- California has many older homes that are unanchored

One Year Later:
Symposium on the 2018 M7.1 Anchorage Earthquake
Sept. 24-26, 2019