

EXAMPLE CALCULATION – NUMBER OF WASAFE BSEs TO REQUEST

SCENARIO:

The City of Nearfault has 4,000 buildings. The only large building is a 6-story hotel, built in 1994 with steel moment frames as the lateral system. There are 200 small wood-framed retail or apartment buildings, none over two stories high. The rest of the buildings are single-family residences.

After a major earthquake, the mayor expects all buildings in the city to be evaluated within three weeks. Nearfault's building department can put six teams of building inspectors and plans examiners toward the effort. Nearfault also has a mutual aid agreement with the City of Faultfree, who will provide four teams (eight building inspectors). Thus, Nearfault has a total of 10 teams (20 individuals) immediately available.

CALCULATION:

- Assumptions:
 - The request for WAsafe BSEs from Nearfault's building official is initiated on Day 1 of the event.
 - All teams will work six 8-hour days a week.
 - There will be a nearly one-week delay (six lost working days) from the time the request is sent up the chain to the time WAsafe volunteer BSEs can begin working on site.
 - A team can perform 16 evaluations per day.
- Given the 6-day work week, the teams will have 18 working days to evaluate all 4,000 buildings within the desired three weeks.
- Since the 10 Nearfault & Faultfree teams can work all 18 days they can cover:

$$(18 \text{ days}) \times (16 \text{ evaluations/day}) \times (10 \text{ teams}) = 2,880 \text{ evaluations}$$

- Volunteer WAsafe BSEs will be needed to complete the remaining evaluations:

$$4,000 - 2,880 = 1,120 \text{ evaluations}$$

- Given the delay until they arrive (six lost working days), WAsafe BSEs will be working for 12 days. To cover the 1,120 evaluations:

$$\frac{1,120 \text{ evaluations}}{(16 \text{ evaluations/day}) \times (12 \text{ days})} = 5.8 \text{ teams} \Rightarrow 6 \text{ teams needed}$$

6 teams x 2 BSEs/team = **12 WAsafe BSEs needed**

- What Types of BSEs to request:

In this case, WAsafe would recommend the following mix of Types:

- Given the 6-story hotel, at least one of the requested WAsafe BSEs should be a WAsafe Type 1 BSE.
- At least one other should be either a Type 2 or Type 3 BSE, to assist in habitability evaluation of the 6-story hotel (if required by the building official), and to help evaluate the retail and apartment buildings.
- The remaining BSEs can be Type 4 and be assigned to evaluate single family residences.

As a note, in a major earthquake, it is unlikely that Nearfault will receive this many WAsafe BSEs, as there will be many other jurisdictions who will need help, and the available pool WAsafe volunteer BSEs is likely to be limited. However, the request should still be sent up the chain so the State Emergency Operations Center can be informed of the extent of the need. If WAsafe cannot fulfill all the needs in the state, the State can activate the Emergency Management Assistance Compact (EMAC) to request additional help from other states.