

Overview of Earthquake Engineering



What's covered in this section:

- ❖ Basic sources of damage
- ❖ Fundamental guidelines
- ❖ How building codes have evolved
- ❖ Current trends in earthquake engineering
- ❖ How CE 227 fits

What's Next:

Design criteria, code formats, Is nonlinearity our friend?

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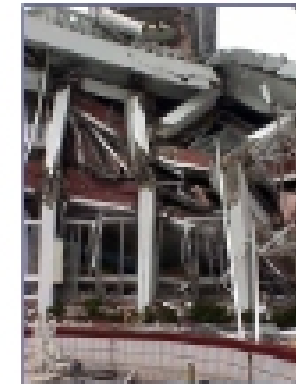
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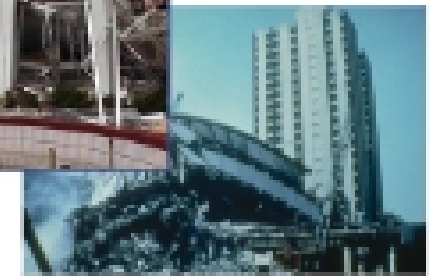
Review Sources of Damage

Damage caused by:

- ✓ Ground shaking
- ✓ Fault rupturing
- ✓ Liquefaction and soil movement
- ✓ Slope instability and landslides
- ✓ Tsunami and seiche
- ✓ Fire
- ✓ Flooding
- ✓ Interaction with adjacent structures (pounding)



We will look at effects of ground shaking in more detail later



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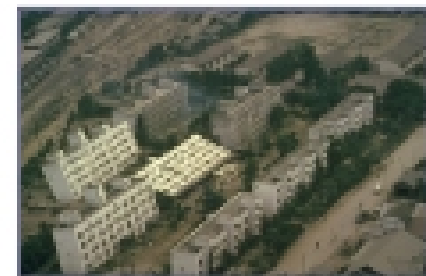
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Crescent City CA 15/02

Hilo, Hawaii following 1980 M 9.5 Chilean Earthquake (81 fatalities)



14-meter tall tsunami in 1945 resulting from M 7.6 Asian Earthquake caused 150 fatalities

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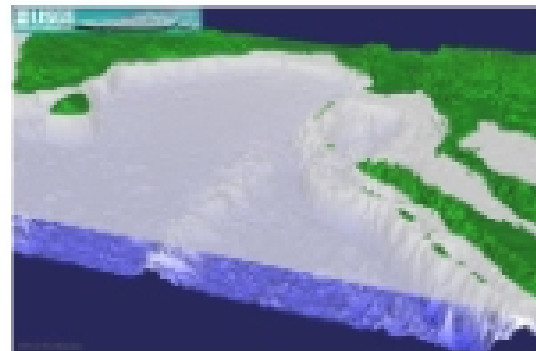
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December 2004 Sumatra Earthquake

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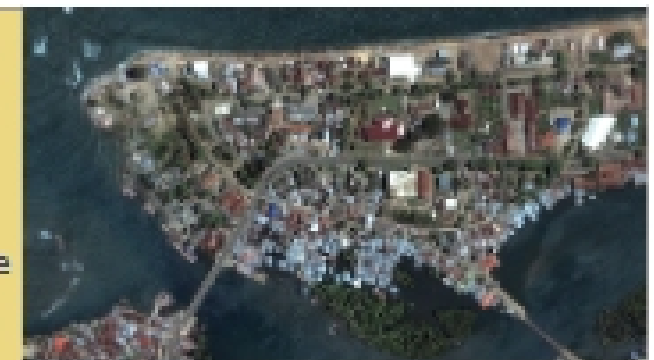
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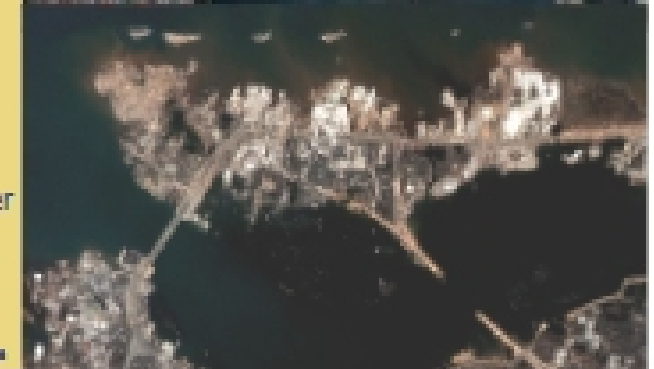
Sumatra Earthquake

Banda Aceh, Indonesia

Before



After



DigitalGlobe

Tsunami Videos ([see: http://www.asiantsunamivideos.com/](http://www.asiantsunamivideos.com/))



Dec. 26, 2005 Banda Aceh, Indonesia

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Sumatra Earthquake

Banda Aceh,
Indonesia

Before



After

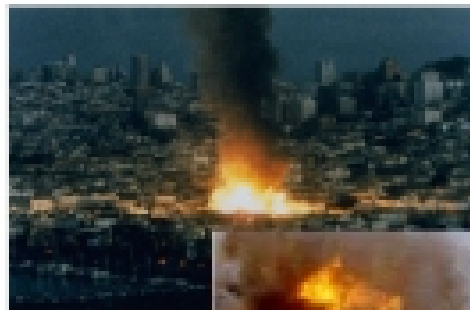


DigitalGlobe

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San Francisco, 1909



Kobe, 1995

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