

**Step 1. Outline**  
Define the problem

<b>What</b>	Problem(s)	Fire
<b>When</b>	Date	April 11, 2010
	Time	~10:00 p.m.
	Different, unusual, unique	Building showed signs of neglect
<b>Where</b>	State, city	Chinatown, NYC, NY
	Facility, site	6-story apartment building
	Unit, area, equipment	Blaze broke out in back of store
	Task being performed	?

**Chinatown Fire, NY**  
April 11, 2010

On April 11, 2010, a fire broke out in a store on the first level of an apartment building on the 200 block of Grand Street in Chinatown, New York City. The fire would eventually reach 7 alarms, requiring 250 firefighters to fight. Once firefighters were able to enter the building the next day, they found one body. 33 people, including 29 firefighters, were injured and approximately 200 were left homeless, as the blaze left three buildings needing to be demolished and at least two more severely damaged.

**Timeline**

What happened when

Date	Time	Description
December, 2009		Building listed for sale at \$13.5 M
April, 2010		Price on building dropped to \$9.25 M
April 11, 2010	10:00 p.m.	Fire broke out
	12:00 a.m.	Fire reaches 7 alarms
April 12, 2010	2:15 a.m.	Fire under control
	3:00 p.m.	Firefighters learn that Sing Ho is missing
	8:20 p.m.	Firefighters find the body of Sing Ho

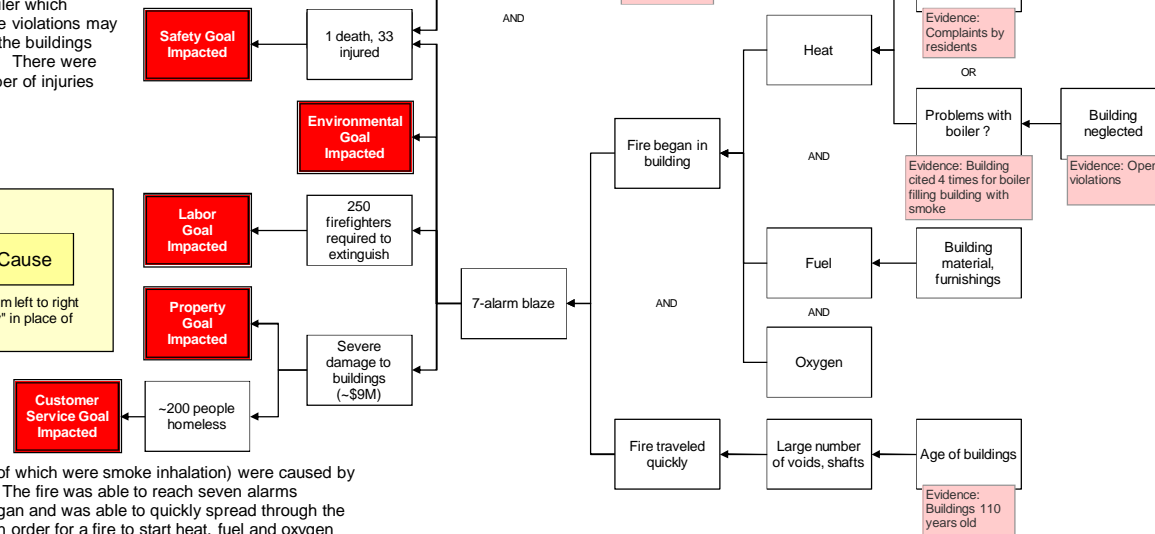
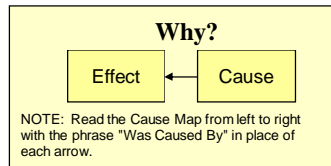
**Impact to the Goals**

<b>Safety</b>	1 death; 33 injured (29 firefighters)	
<b>Environmental</b>	7-alarm blaze	
<b>Cust. Service</b>	~200 people homeless	
<b>Production-Schedule</b>	?	
<b>Property, Equip, MtIs</b>	Severe damage to buildings	~\$9 M
<b>Labor, Time</b>	250 firefighters required to extinguish	
	This incident	\$9 M
Frequency	First 7-alarm fire since August 2007	Annualized Cost \$3 M

Throughout an investigation there may be additional tools that help to clarify the incident. Here we use a timeline to show the sequence of events. A timeline is especially useful for complex events such as this.

For years the buildings affected (which were more than a century old) had been neglected, including violations for missing smoke detectors and a boiler which released smoke into the buildings. At this point it's unclear how these violations may have contributed to the fire and its aftermath. At the time of the fire, the buildings were for sale for over \$9 million, although no offers had been made. There were many goals impacted by the fire, but the loss of human life and number of injuries are the focus for our investigation.

**Step 2. Cause Map**  
Analyze the issue



The injuries (many of which were smoke inhalation) were caused by a seven-alarm fire. The fire was able to reach seven alarms because the fire began and was able to quickly spread through the six-story building. In order for a fire to start heat, fuel and oxygen are required. There's no shortage of fuel and oxygen in an apartment building, due to necessities for people to live there. The heat (or ignition source) may have been provided by exposed wiring that many residents have complained of, or the boiler previously cited for neglect. Or, it may have been something else altogether. (However, arson is not suspected at this point.)

The fire was able to spread so quickly due to a large number of voids and shafts in the building - a function of its age. Another cause that may have contributed to the death was a potential lack of warning of the fire due to the missing smoke detectors for which the building had also been previously cited.

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