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Collaborative session between the committees

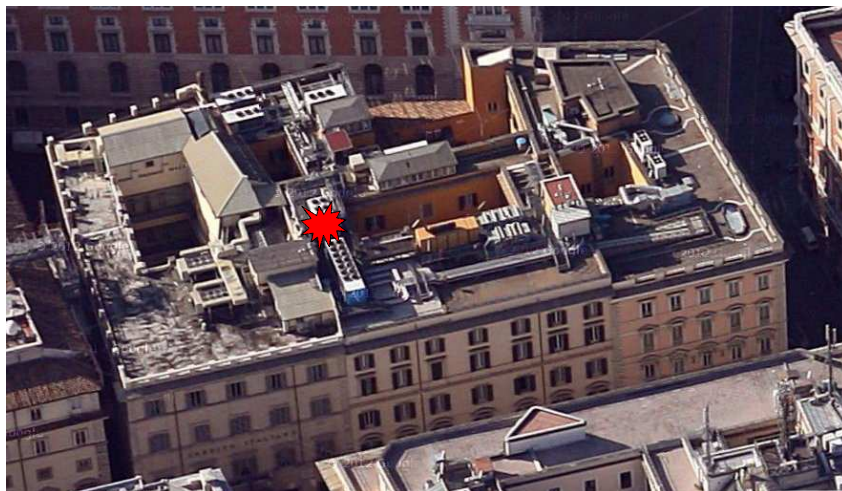
**Indoor location and communication**  
**FIRE OF AN HISTORICAL PALACE IN ROME IN 1999**

Marcello Marzoli and Claudio Garibaldi, Italian National Fire Corps



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FIRE OF AN HISTORICAL PALACE IN ROME IN 1999



In 1999, at 10:30 PM fire spreads into an office building



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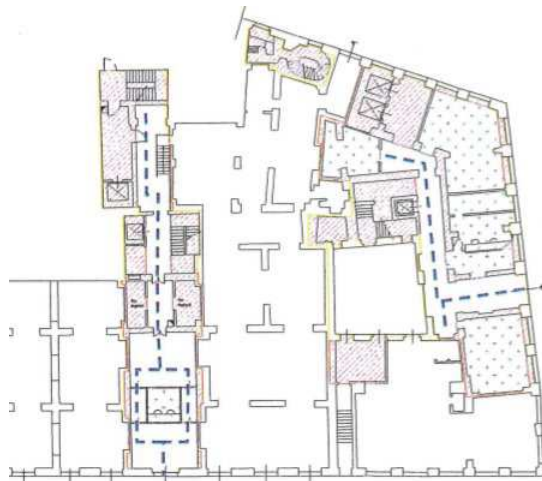
### FIRE OF AN HISTORICAL PALACE IN ROME IN 1999



The block is composed of three adjacent edifices. The public office previously located into one of them (red) was being joined to the adjacent one (green).



### FIRE OF AN HISTORICAL PALACE IN ROME IN 1999



Thanks to the restoration works, at the ground floor, it is not clear that the whole building is made from two edifices.



## FIRE OF AN HISTORICAL PALACE IN ROME IN 1999



Floors in the two edifices are not at the same elevation.



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## FIRE OF AN HISTORICAL PALACE IN ROME IN 1999



Floors corridors are connected through stairs, which exploit loading docks height and outer walls width. The resulting building is particularly vast.



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## FIRE OF AN HISTORICAL PALACE IN ROME IN 1999

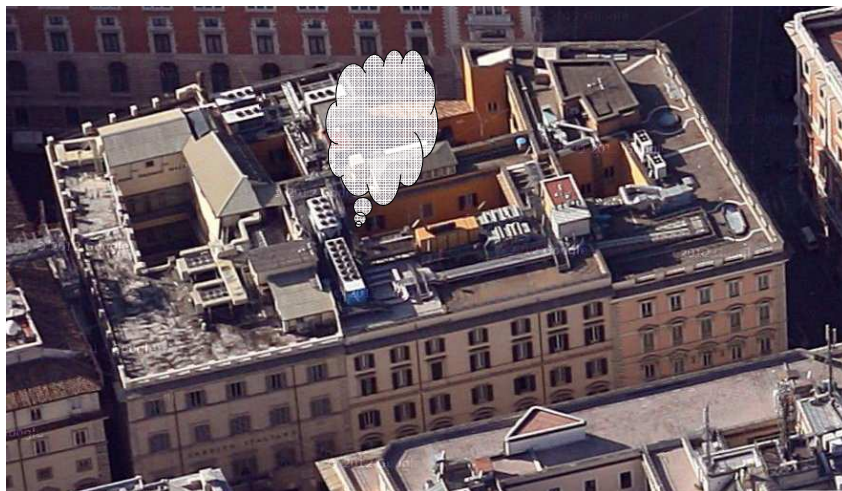


The fire starts for unknown reasons in two locked rooms and keeps smouldering for a long period before anyone becomes aware of it. The fire alarm was partially tampered by disabling the acoustic alarms both on the floors and into the caretakers' lodge.



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## FIRE OF AN HISTORICAL PALACE IN ROME IN 1999



The windows of the affected rooms (highest floor) overlook a light-well. The smoke is detected from the outside, but not from the caretakers.

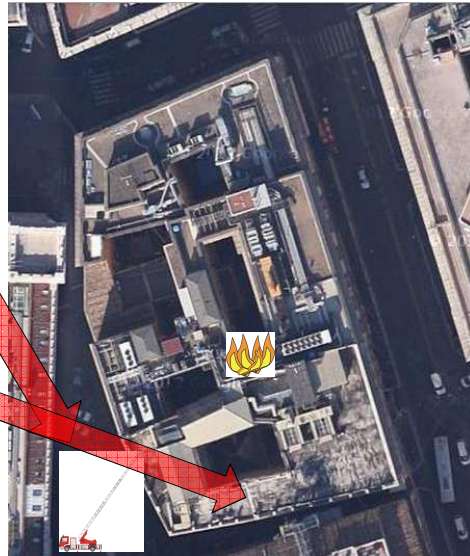


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### FIRE OF AN HISTORICAL PALACE IN ROME IN 1999

Caretakers erroneously direct the first team of firemen arrived on place (an aerial ladder) to the adjacent edifice (which is not part of the concerned building).



From that point of view firemen can barely see the flames' glare.

Some thirty minutes have already passed.



### FIRE OF AN HISTORICAL PALACE IN ROME IN 1999

Fire hoses are deployed but firemen do not find a way to the fire. No traces of smoke can be detected within the building. The situation gets more and more confused.



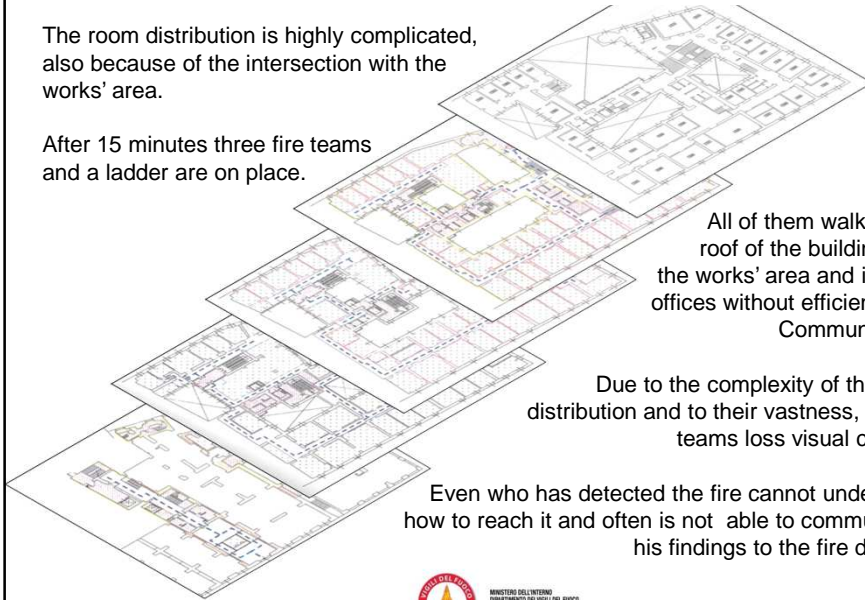
Caretakers direct the first fire truck towards the main door and staircase of the works' area.



## FIRE OF AN HISTORICAL PALACE IN ROME IN 1999

The room distribution is highly complicated, also because of the intersection with the works' area.

After 15 minutes three fire teams and a ladder are on place.



All of them walk on the roof of the building, into the works' area and into the offices without efficient radio Communication

Due to the complexity of the room distribution and to their vastness, the fire teams loss visual contact.

Even who has detected the fire cannot understand how to reach it and often is not able to communicate his findings to the fire director.



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## FIRE OF AN HISTORICAL PALACE IN ROME IN 1999

Two leading fire-fighters together with the caretaker inspect places.

Initially using staircases, after using lifts up to the fourth floor.

There only smell of fire, no smoke or flames.



Then they use a second elevator located just below a small tower

The lift brings them at small space located at the fifth floor



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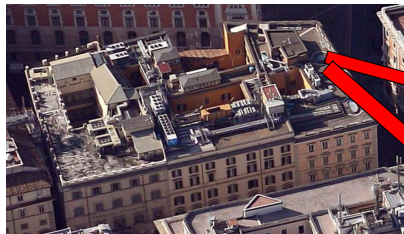
The space is completely filled with smoke so thick that the lighting is inefficient and the photocells of the lift doors get blind and prevent doors from closing.

The accompanying caretaker, knowing the place, manages to escape, but he is in shock and not able to report efficiently on the situation.



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## FIRE OF AN HISTORICAL PALACE IN ROME IN 1999



They do not get aware that the surrounding closed armoured windows do not give into space, but into an easily reachable terrace.

Rescue from other firemen arrives both from the inside of the building and from the terrace, by breaking the armoured windows



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## FIRE OF AN HISTORICAL PALACE IN ROME IN 1999



The fire resulted to have spread over an area of circa 1,000 square metres.

One of the two firemen will suffer permanent brain damage because of the long time without enough oxygen.

### Difficulties encountered:

- wrong instructions from the caretakers,
- extreme complexity and vastness of the building,
- coexistence of works and offices,
- tampering of the alarm system,
- inefficiency of the radio communications between teams and with the fire director

Days after, the firemen made several surveys into the building:  
Even in full daylight and without rushing they often lost their bearings.



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thank you



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