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*Fire & Integrated
Solutions*

FIA Guide for Watermist Fire Protection for High Rise occupancies

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Chair: FIA/BAFSA Watermist Working Group

a vital part of your world

Apartment fire New York January 2108

- Child in kitchen playing with fire
- Kitchen catches light
- Mother grabs child and runs out of apartment
- Mother leaves apartment door open
- Apartment building burns to the ground.

What constitutes High Rise? Why is it important?

What constitutes high rise:
Buildings rising above 45m

Why is it important:

Upper floors above the reach of fire
brigade ladders.

Fire fighters need extra time to
reach fires on upper floors.

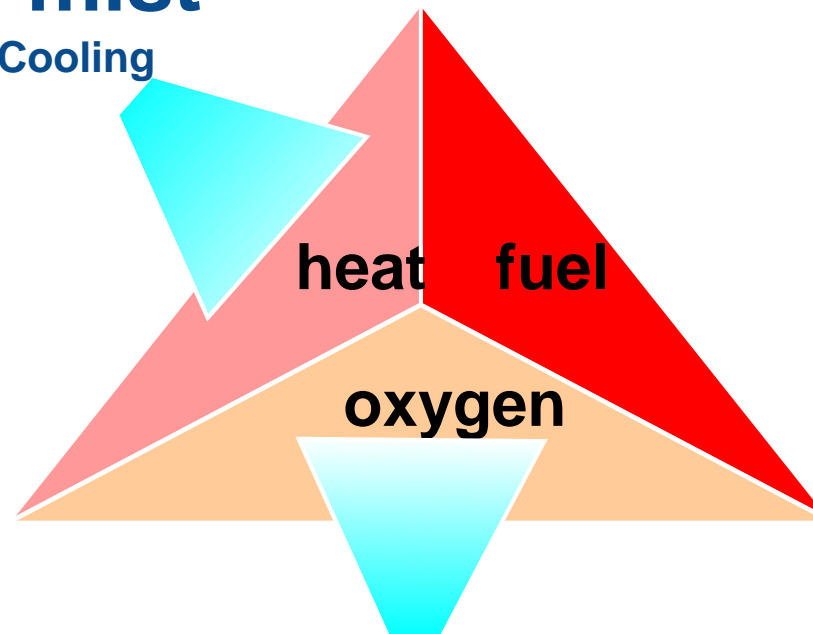
Evacuation become problematic



How does Watermist Work?

Water mist

Efficient Cooling



Water mist

steam smothering at flame front

High Rise Water Mist Features and Benefits



Features

- Full scale fire tests
- Automatic nozzles
- Low water flows
- Small pipes
- Small water tank
- Fire suppression at source
- Suppression + cooling

Benefits

- Validated designs
- Only nozzles over fire open
- Limited water damage
- Easy installation
- Small plant room footprint
- Supports defend in place
- Improved tenability

Fires in high rise



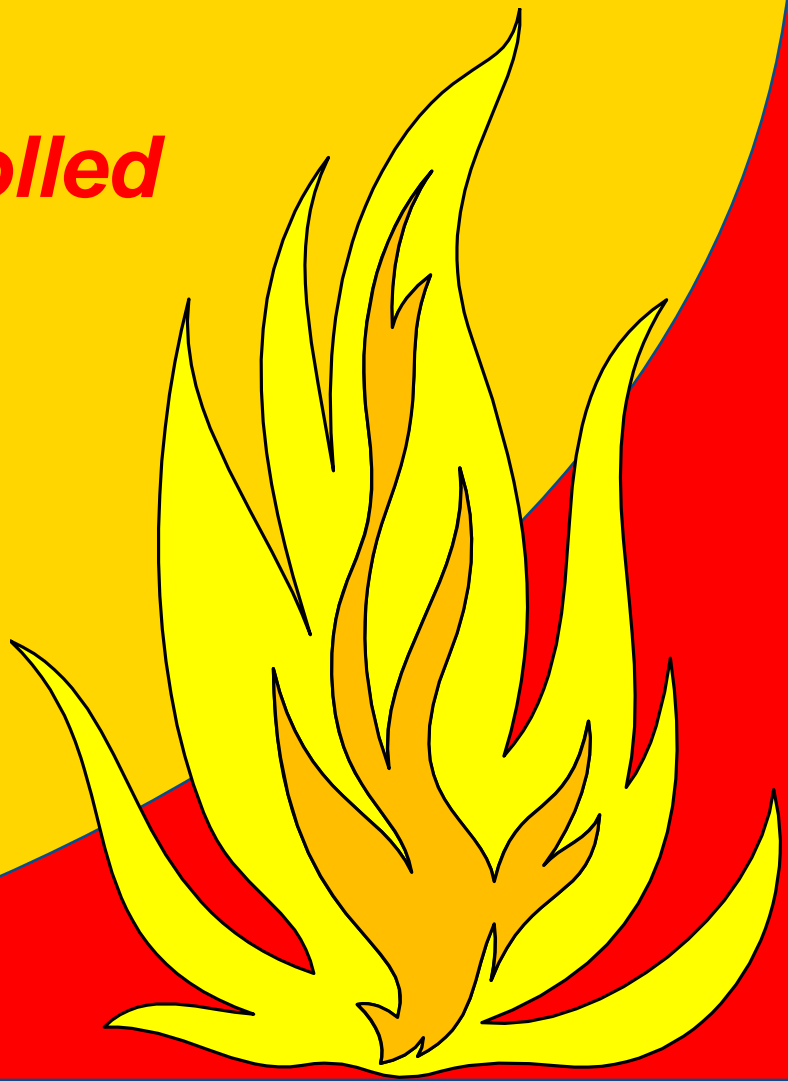
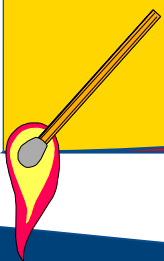
**Fires do not change
when they occur in the
upper floors of high rise
occupancies**

Fire growth - uncontrolled

Temperature

Time

**How long before the fire alert
and Fire fighter arrival at the scene?**



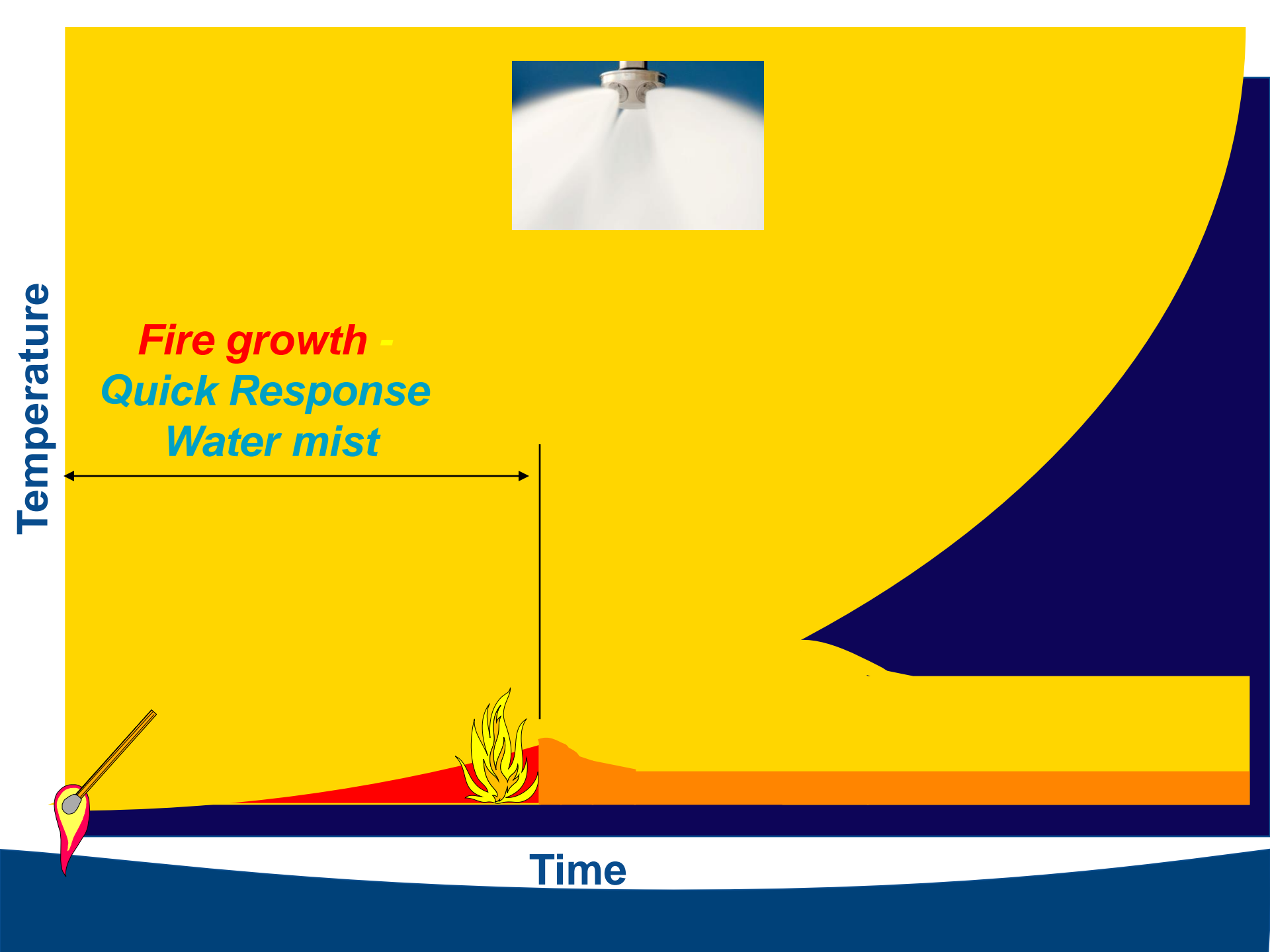
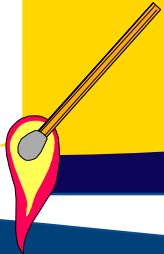


Temperature

Fire growth -
Quick Response
Water mist



Time



High Rise Water mist FIA Guide -Zoning



- 200 mist heads per zone or
- 2400 m²
- 1 floor per zone
- Whole occupancy protected

High Rise Water Mist System

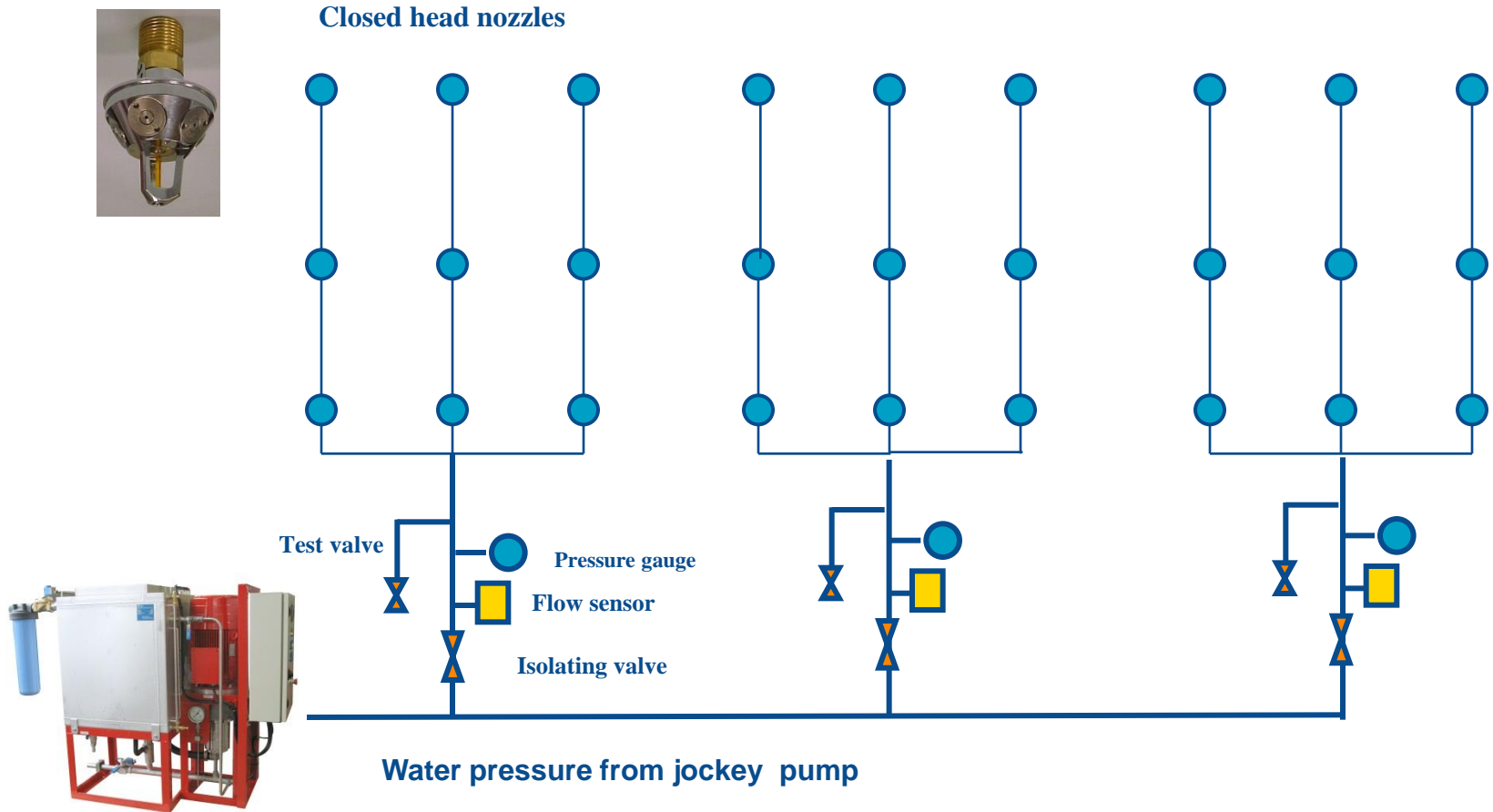
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Pump System – Closed Nozzles - Wet Pipe



Closed head nozzles



High Rise Water Mist FIA Guide -Hydraulics

- Fully hydraulically calculated
- Most favourable and most unfavourable AMAOs.
- Assumes Maximum Area of Operation – 216 m²
- Flux density per OH1 fire loads
- AMAO per OH3 risks – contingency for delayed firefighter response / problematic evacuation.

High Rise water Mist FIA Guide -water supplies

- N+1 pumps – redundancy
- Dual feed to tank
- Full capacity tank
- 60 minute supply



Why are small droplets beneficial?

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Greater surface area

- **Greater heat absorption creates rapid cooling and oxygen displacement at the flame front.**
- **More effective smoke scrubbing**
- **Blocks radiant heat transfer**

Lighter droplets

- **Airborne longer**
- **More time to be effective**
- **Two dimensional – Swirls around obstructions.**

High Rise Water Mist Standards



- FIA Guidance on Additional Requirements for Watermist Systems Protecting High Rise Buildings.
- BS8489-1 Fixed Fire Protection Systems for Industrial and Commercial Watermist Systems – Code of Practice for Design and Installation
- VdS 3188.

Thankyou !!