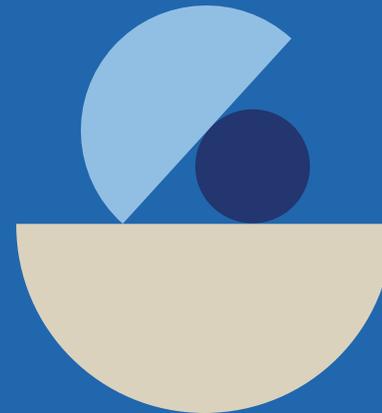


# An insurers view of successful water mist applications

Fire Sprinkler International 2022

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# Agenda

- Zurich methodology and recognised controls
- Zurich recognised technology assessment
- Local application extinguishing systems
- Water mist protection of buildings
- Questions

# How we support customers

Concept to completion of project – 5 stage process

- **Fire Protection Project Concept Review**  
A preliminary review of a proposed facility / occupancy, conducted at an early stage in the project.
- **Fire Protection Specification Review**  
A review of a proposed fire protection design (e.g. sprinklers, fixed fire protection, water supply, fire detection)
- **Fire Protection Plan Review**  
A detailed review of plans (e.g. sprinkler drawings, hydraulic calculations etc.)
- **Fire Protection Systems Installation – On-site Assessment**  
A site visit by ZRS at one or more stages during the installation of the fire protection systems to identify deviations from the specification
- **Fire Protection Acceptance Tests**  
Witnessing fire protection acceptance testing on-site.



# Zurich Methodology and Recognized Controls

Approach to risk evaluation

The Zurich Risk Engineering Methodology is our approach to the **risk assessment process**, based on the **dimensions** of RISK.

It provides context for our existing deliverables.

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## Exposures

People, assets, or profits, i.e., values at risk, subject to injury or damage due to hazards.

Exposures will vary based upon the peril being assessed.

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## Hazards

Potential sources of damage.

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## Controls

Controls are measures intended to reduce risk.

The quality of controls is evaluated for its availability, reliability, and fitness for purpose.



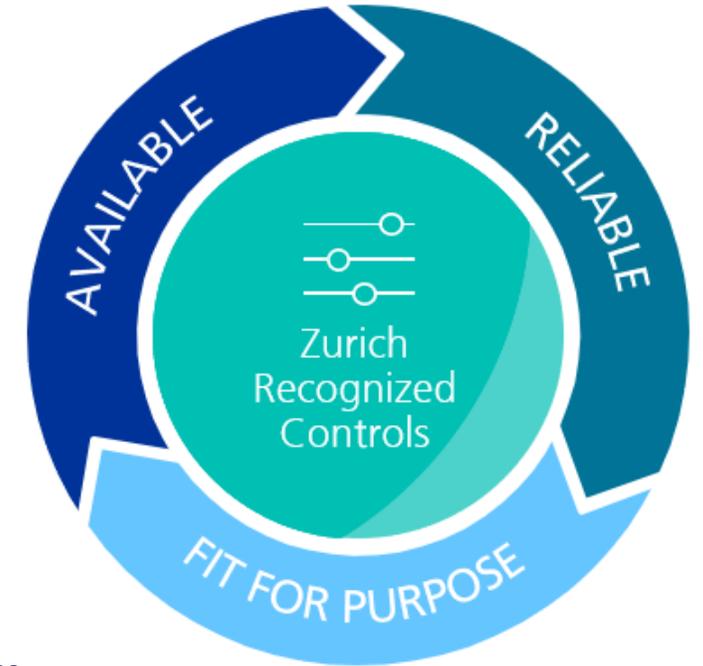
# Fixed Fire Protection Systems

A control to mitigate risk and loss

The quality of a control is evaluated for its availability, reliability, and fitness for purpose, based upon the nature of the exposures and level of hazards.

3 simple step:

- Available – In service
- Reliable – Inspection, Testing and Maintenance
- Fit for Purpose – meets Zurich’s requirements for a property protection system with proven performance
  - Zurich Recognized Technology methodology carefully applied



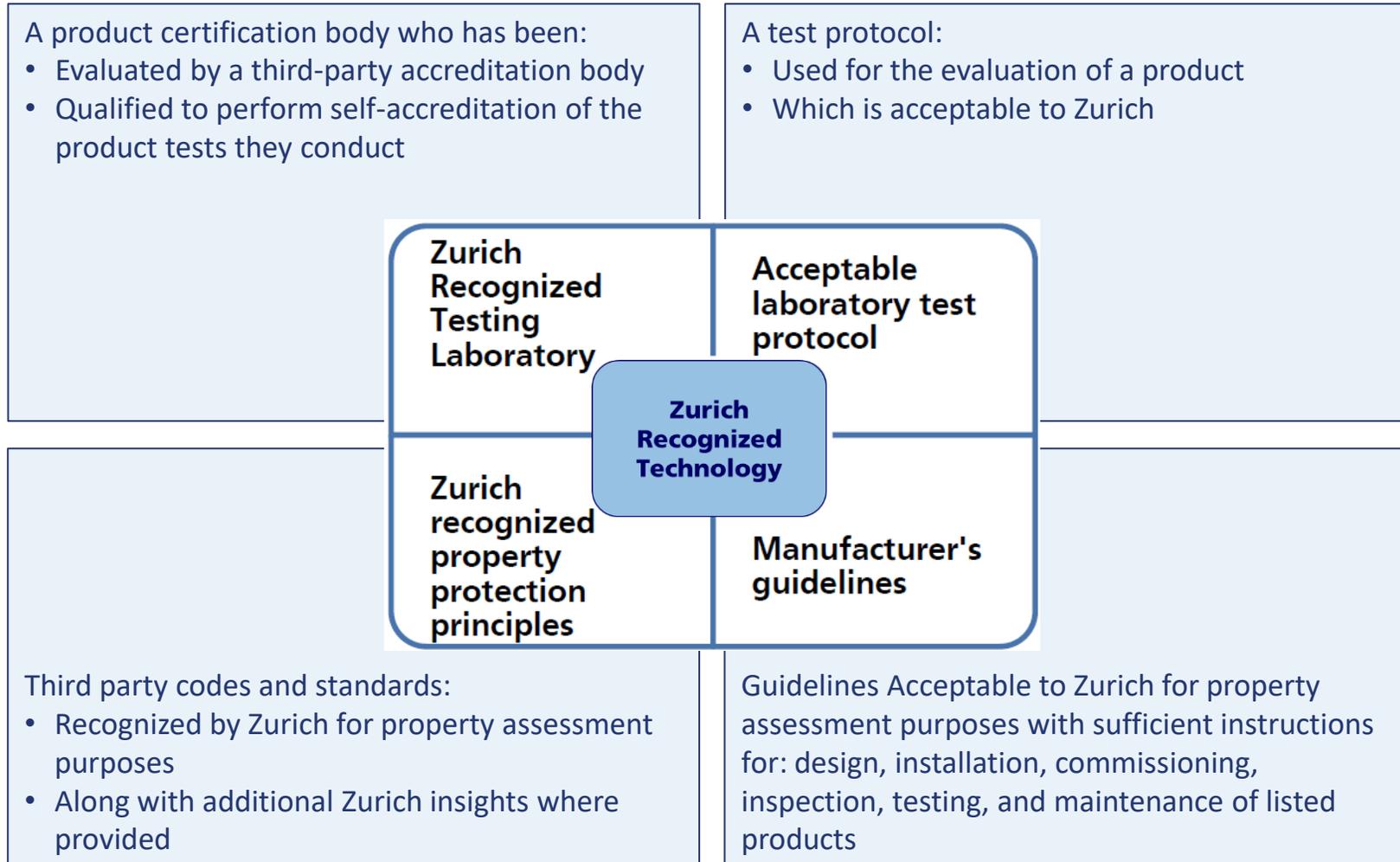
# Zurich Recognized Technology

A positive outcome

# Zurich Recognized Technology

Devil is in the detail

The terms approved, certified, and listed are used interchangeably

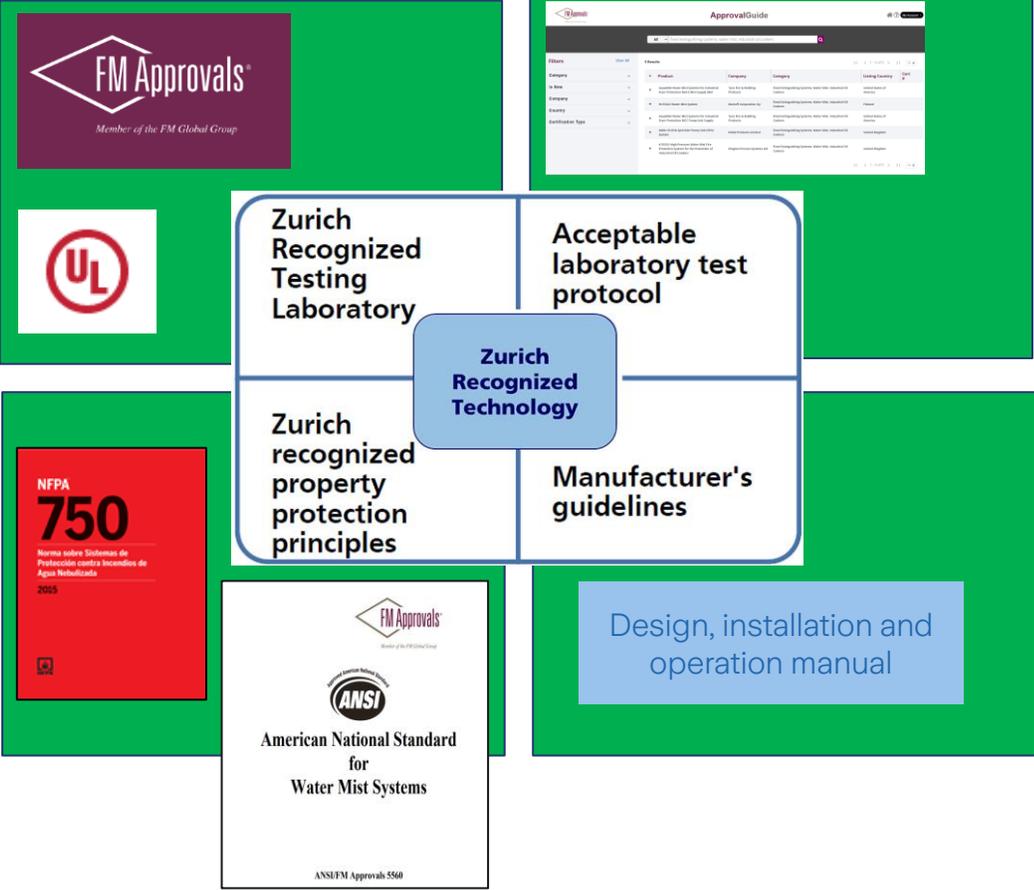


# Example – water mist for industrial oil cookers

## Local application open nozzle deluge extinguishing system



Fire Test Protocol and Component Approvals



# Water mist for building protection

Our stance

# Water mist in buildings

Claimed equivalency?

## Common issues of water mist design guides

- Sloped ceilings
- Open cell ceilings
- Obstructions, (beams and bays, ducting)
- Power supply security
- High ceilings
- Ceiling voids
- Floor penetrations
- Water supply duration limited to aid escape only, not supporting manual fire fighting efforts

## Insurer view on sprinkler system acceptability

- Additional guidance in EN12845/LPC Rules
  - Power supplies for pumps
  - Water supply arrangements
  - Water supply duration
  - Obstruction criteria
  - Ceiling features
- Not recognized by insurers
  - Residential/domestic systems
  - Light hazard systems

Note: BRE tests in 2010 demonstrated the need for at least 5mm/min density to achieve sprinkler equivalency in multiple office arrangement tests by many water mist suppliers

# Challenges to achieve ZRT in buildings

## Test laboratories:

- Many components have not been tested
- Many nozzles have 'o' rings (banned in sprinklers for around 30 years).
- Many fire tests not completed by a recognized test lab, only at their lab.
- Some manufacturers claim listing/approval by bodies without listing/approval authority.

## Test protocols:

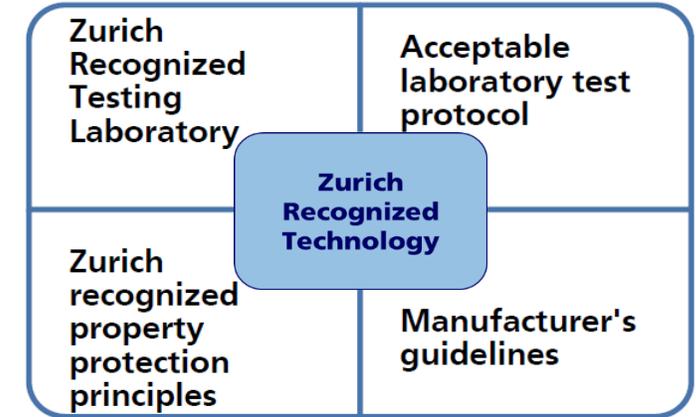
- Many tests not representative of risk.
- Many tests aligned to IMO and UL tests. for life safety/residential sprinkler tests
- Many tests completed with unlisted components.
- No test data for dry systems (sprinkler design methodology not proven for mist).

## Third party codes and standards:

- Sprinkler standards group occupancies together of a similar fire load.
- Some manufacturers and standards groups are trying this without suitable test data to support guidance.

## Manufacturers guidelines:

- Proprietary and not always available to evaluate design compliance.
- Do not provide guidance (or test data) to support protection of voids, obstructions, sloped ceilings, ventilation etc.
- No inspection, testing or maintenance requirements offered.





A resilient built environment cannot be achieved by only considering life safety.



Architects, fire officers and fire engineers are **only** considering life safety



Building regulations **only** focus on life safety



Consideration for property protection, business interruption, business continuity, environmental risk and reputation risk(s).

# Water mist in buildings

## Current stance and reasons for rejection

- Publication of a standard does not ensure property insurer recognition of a fire protection product or system
- Tests replicate IMO & UL standards for residential/domestic sprinklers
  - Residential/domestic sprinkler systems are not recognized
  - Construction trade offs in compartment rating/size are not recognized in non-property systems
- Robust 3<sup>rd</sup> party installer schemes not available/utilized for mist systems
- Proposals regularly have the following features
  - Limited/insufficient test data
  - Lack of approved nozzles and/or components
  - Lack of validation by recognized test laboratory
  - Applications beyond scope
- Remember - additional requirements of EN 12845 and supported by LPC Technical Bulletins to support property protection recognition (power supplies, water supplies, etc.)

# Thank you

Any questions

